JVC

SERVICE MANUAL

COMPACT COMPONENT MD SYSTEM

CA-MD9R

Area Suffix

BS ---------------------- U.K.
G ------------------ Germany
EF --- Continental Europe
EN ------ Northern Europe

MiniDisc

COMPACT disc DIGITAL AUDIO

R·D·S EON

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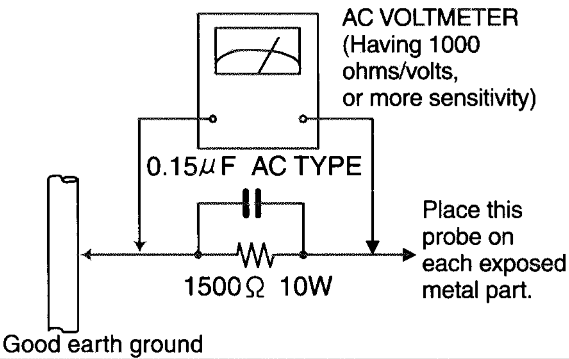
No.20681
Apr. 1998

Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer`s warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet , particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to eachexposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

Safety Precautions (U.K only)

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits.
2. Any unauthorised design alterations or additions will void the manufacturer's guarantee ; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.
3. Essential safety critical components are identified by (⚠) on the Parts List and by shading on the schematics, and must never be replaced by parts other than those listed in the manual. please note however that many electrical and mechanical parts in the product have special safety related characteristics. These characteristics are often not evident from visual inspection. Parts other than specified by the manufacturer may not have the same safety characteristics as the recommended replacement parts shown in the Parts List of the Service Manual and may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

Warning

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2. This equipment has been designed and manufactured to meet international safety standards.
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5. It is essential that safety critical components are replaced by approved parts.
6. If mains voltage selector is provided, check setting for local voltage.

⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

Important for Laser Products

1.CLASS 1 LASER PRODUCT

2.DANGER : Invisible laser radiation when open and inter lock failed or defeated. Avoid direct exposure to beam.

3.CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.

4.CAUTION : The compact disc player uses invisible laserradiation and is equipped with safety switches whichprevent emission of radiation when the drawer is open and the safety interlocks have failed or are de feated. It is dangerous to defeat the safety switches.

5.CAUTION : If safety switches malfunction, the laser is able to function.

6.CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

⚠ ***CAUTION*** **Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.**

VARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle.Älä katso säteeseen.

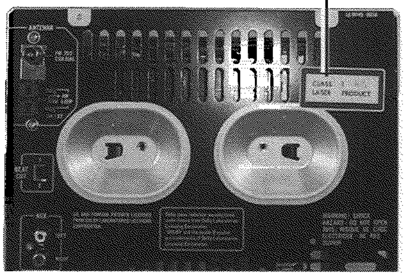
ADVARSEL : Usynlig laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning,når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

WARNING LABEL

CLASS 1
LASER PRODUCT

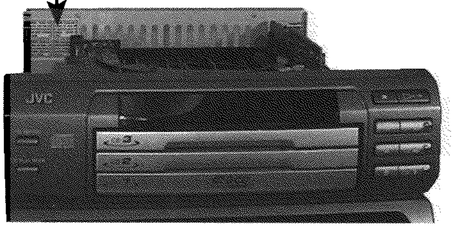


DANGER : Invisible laser radiation when open and interlock or defeated.
AVOID DIRECT EXPOSURE TO BEAM (e)

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle.Älä katso säteeseen. (d)

VARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen. (s)

ADVARSEL :Usynlig laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (f)



JVC

COMPACT COMPONENT MD SYSTEM

CA-MD9R

MiniDisc

COMPACT disc DIGITAL AUDIO

R·D·S EON

INSTRUCTIONS

For Customer Use:
Enter below the Model No. and Serial No. which are located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No. ____________________

Serial No. ____________________

LET0070-002A
[B]

JVC
VICTOR COMPANY OF JAPAN, LIMITED

0398TTMMDWSAN

EN

Warnings, Cautions and Others

IMPORTANT for the U.K.

DO NOT cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.

BE SURE to replace the fuse only with an identical approved type, as originally fitted.

If nontheless the mains plug is cut off ensure to remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.

If this product is not supplied fitted with a mains plug then follow the instructions given below:

IMPORTANT:

DO NOT make any connection to the terminal which is marked with the letter E or by the safety earth symbol or coloured green or green-and-yellow.

The wires in the mains lead on this product are coloured in accordance with the following code:

Blue :	Neutral
Brown :	Live

As these colours may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

IF IN DOUBT - CONSULT A COMPETENT ELECTRICIAN.

Caution — ⏻/I switch!

Disconnect the mains plug to shut the power off completely. The ⏻/I switch in any position does not disconnect the mains line. The power can be remote controlled.

CAUTION

To reduce the risk of electrical shocks, fire, etc.:

1. Do not remove screws, covers or cabinet.
2. Do not expose this appliance to rain or moisture.

IMPORTANT FOR LASER PRODUCTS

REPRODUCTION OF LABELS

① CLASSIFICATION LABEL, PLACED ON REAR ENCLOSURE

CLASS 1
LASER PRODUCT

② WARNING LABEL, PLACED INSIDE THE UNIT

DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

VARNING: Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)

ADVARSEL: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling (d)

VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)

1. CLASS 1 LASER PRODUCT
2. **DANGER:** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION:** Do not open the top cover. There are no user serviceable parts inside the Unit; leave all servicing to qualified service personnel.

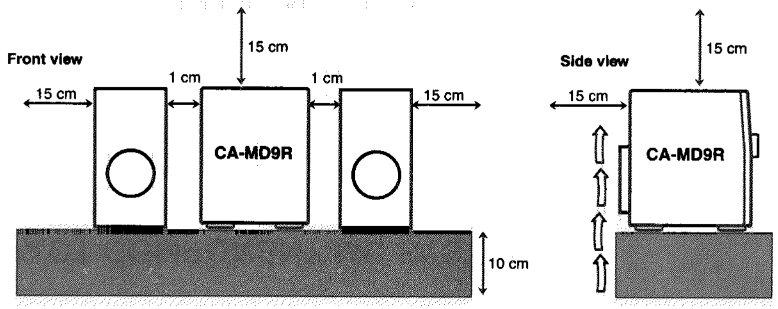
Caution: Proper Ventilation

To avoid risk of electric shock and fire, and to prevent damage, locate the apparatus as follows:

1 Front:
  No obstructions and open spacing.

2 Sides/ Top/ Back:
  No obstructions should be placed in the areas shown by the dimensions below.

3 Bottom:
  Place on the level surface. Maintain an adequate air path for ventilation by placing on a stand with a height of 10 cm or more.



Thank you for purchasing the JVC Compact Component MD System.
Be sure to read this instruction manual carefully before operating your new stereo system.
For questions that are not be answered in the manual, contact your dealer.

Features

Here are some of the things that make your CA-MD9R powerful and easy to use.

One Touch Operation
- ☐ The controls and operations have been redesigned to make them very easy to use so you can spend your time listening to music.
  - With the One Touch Operation feature of JVC's you can turn on the CA-MD9R and start the radio, the Cassette Deck, the CD Player, or the MD Recorder with a single touch.
  - You can use the MULTI JOG dial to set the CD Player, MD Recorder, Tuner, Timer, and Sound Mode operations.

R·D·S EON
- ☐ CA-MD9R is compatible with RDS (Radio Data System) broadcasting.
  - The EON data enables you to standby for information you want.
  - The PTY Search function looks for programs in the category you want.

  In addition, Radio Text can be displayed using data sent by station.

3CD Triple Tray
- ☐ 3-Tray CD Player can operate 3 CDs.
  - CDs can be changed during play.
  - Continuous, random or program play of 3 CDs.

3MD Changer
- ☐ 3-MD changer can operate 3 MDs.
  - MDs can be changed during play.
  - Continuous, random or program play of 3 MDs.
  - Digital recording from CD to MD.
  - Easy editing of your favorite songs with the powerful editing functions of your CA-MD9R.

Three timers
- ☐ The three timers, **Daily Timer, Recording Timer,** and **Sleep Timer** are extremely easy to set.

How This Manual Is Organized

In this manual we have incorporated some special features:
- Basic information that is the same for many different functions is grouped in one place, and not repeated in each procedure. For instance, in the section on playing a CD, we do not repeat the information about setting the volume and the sound conditions, which are discussed in the Using the Amplifier section.
- Name of buttons and controls are written in all capital letters like this: SOUND MODE.

IMPORTANT CAUTIONS

1. **Installation of the unit**
   - Select a place which is level, dry and neither too hot nor too cold. (Between 5°C and 35°C or 41°F and 95°F.)
   - Leave sufficient distance between the unit and a TV.
   - Do not use the unit in a place subject to vibrations.
2. **Power cord**
   - Do not handle the power cord with wet hands!
   - Some power (15 watts) is always consumed as long as the power cord is connected to the wall outlet.
   - When unplugging the unit from the wall outlet, always pull the plug, not the power cord.
3. **Malfunctions, etc.**
   - There are no user-serviceable parts inside. If anything goes wrong, unplug the power cord and consult your dealer.
   - Do not insert any metallic object into the unit.

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Getting Started

Accessories

Check that you have all of the following items, which are supplied with the CA-MD9R.

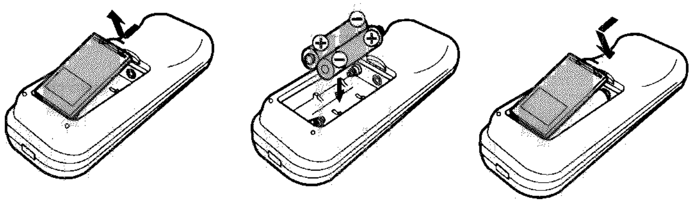
AM (MW/LW) Loop Antenna (1)
Remote Control (1)
Batteries (2)
FM Antenna (1)

If any of these items is missing, contact your dealer immediately.

How to Put Batteries in the Remote Control

Match the polarity (+ and –) on the batteries with the + and – markings in the battery compartment.

R6P (SUM-3)/AA (15F)

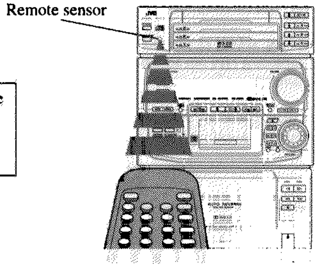


CAUTION: Handle batteries properly.
To avoid battery leakage or explosion:

- Remove batteries when the Remote Control will not be used for a long time.
- When you need to replace the batteries, replace both batteries at the same time.
- Do not use an old battery with a new one.
- Do not use different types of batteries together.

Using the Remote Control

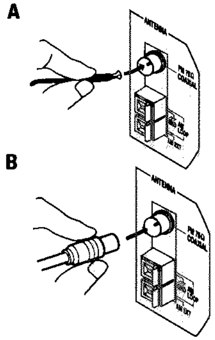
The Remote Control makes it easy to use many of the functions of the CA-MD9R from a distance of up to 7 m (23 feet) away.
You need to point the Remote Control at the remote sensor on the CA-MD9R.



IMPORTANT: Before using the Remote Control for operating this unit, **make sure that the Remote Control is set to the correct operation mode.**

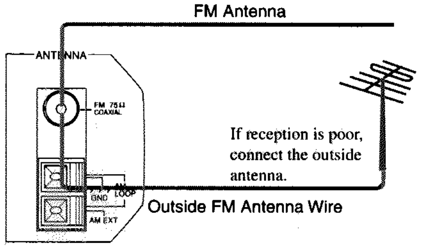
CAUTION: Make all connections before plugging the unit into an AC power outlet.

Connecting the FM Antenna



A. Using the Supplied FM Antenna
The FM antenna provided can be connected to the FM 75Ω COAXIAL terminal as temporary measure.
Extend the supplied FM antenna horizontally.

B. Using the Coaxial Type Connector (Not Supplied)
A 75Ω antenna with coaxial type connector (DIN 45332) should be connected to the FM 75Ω COAXIAL terminal.

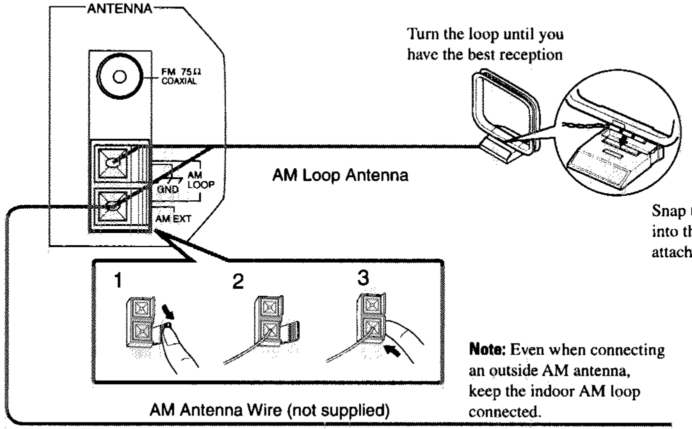


If reception is poor, connect the outside antenna.

Before attaching a 75 ohm coaxial lead (the kind with a round wire going to an outside antenna), disconnect the supplied FM antenna.

CAUTION: To avoid noise, keep antennas away from metallic parts of the CA-MD9R, connecting cord and the AC power cord.

Connecting the AM (MW/LW) Antenna



Turn the loop until you have the best reception

Snap the tabs on the loop into the slots of the base to attach the AM Loop.

Note: Even when connecting an outside AM antenna, keep the indoor AM loop connected.

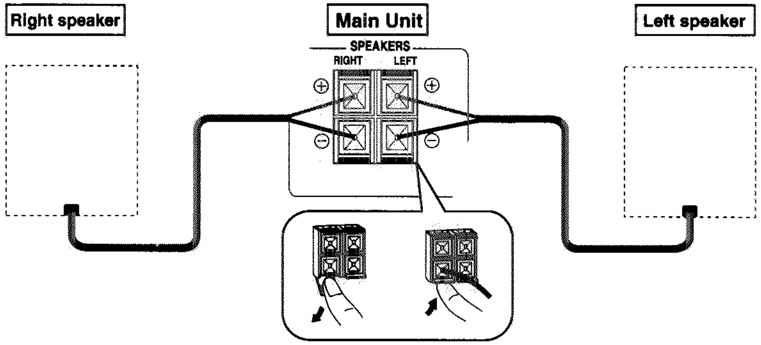
If reception is poor, connect the outside antenna.

CAUTION: Make all connections before plugging the unit into an AC power outlet.

Connecting the Speakers *(Refer to instructions for speakers as well.)*

For each speaker, connect one end of the speaker wire to the speaker terminals on the back of the CA-MD9R and the other end to the speaker.

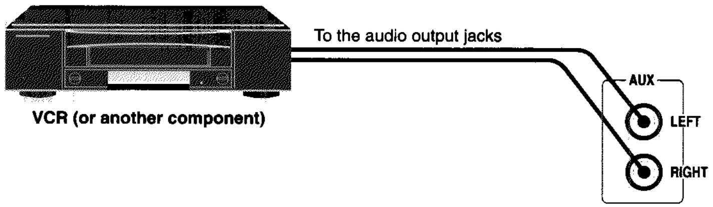
1. Open the terminals and insert the speaker wires firmly (be sure to remove the insulation at the ends of each wire first), then close the terminals.
2. Connect the red (+) and black (–) terminals of the right side speaker to the red (+) and black (–) terminals marked RIGHT on the CA-MD9R.
   Connect the red (+) and black (–) terminals of the left side speaker to the red (+) and black (–) terminals marked LEFT on the CA-MD9R.



IMPORTANT: Use speakers with the correct impedance only. The correct impedance is indicated on the back panel.
CAUTION: If a TV is installed near the speakers, the picture on the TV may be distorted. If this happens, place the speakers away from the TV.

Connecting an External Component

You can connect another component to the AUX jacks, and reproduce the sound of the component through the CA-MD9R.



Note: When you connect a VCR to the CA-MD9R, connect the VCR and the TV directly using the video cords to watch a video tape or record a TV program.

Demo Mode

When the CA-MD9R is connected to an AC power outlet, a Demo automatically starts showing some of the main features.

To stop the Demo, press any button.
"DEMO OFF" appears on the display and the Demo stops.

DEMO OFF

To restart the Demo, press the DEMO button.

One Touch Operation

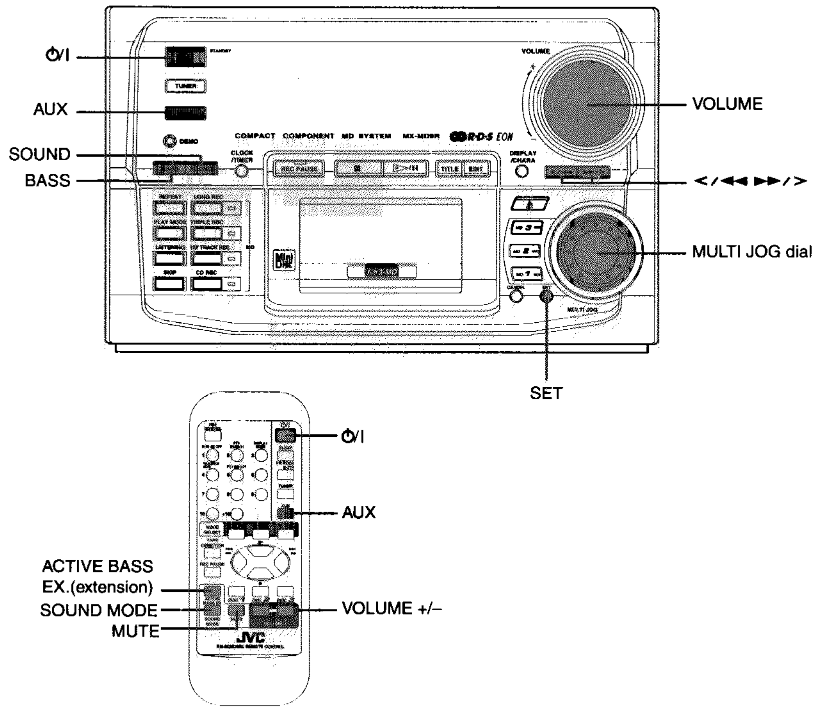
One Touch Operation is JVC's feature that lets you control the most frequently used functions of the CA-MD9R with a single touch.
One Touch Operation starts playing a CD or a MD, turns on the radio, plays a tape, etc. with a single press of the play button for that source. What One Touch Operation does for you is to turn the power on, then start the source you have specified. If the unit is not ready, such as no CD or tape in place, the unit still powers on so you can insert a CD or tape.
How One Touch Operation works in each case is explained in each related section.

The One Touch Operation buttons are:

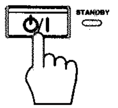
On the unit
- CD (1 to 3) button
- CD Player ▷/❚❚ button
- ▲ (open/close) button for the CD Player
- TUNER button
- AUX button
- MD (1 to 3) buttons
- MD Recorder ▷/❚❚ button
- ▲ (open/close) button for the MD Recorder
- ◁/▷ (Tape play) buttons

On the Remote Control
- TUNER button
- AUX button
- Play button (▶) (when TAPE, CD or MD is selected on the Remote Control)
- DISC (1 to 3) (when CD or MD is selected on the Remote Control)

Using the Amplifier



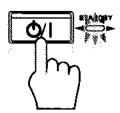
Turning the Power On and Off



Turning the CA-MD9R On

Press the ⏻/I button.

"HELLO" appears on the display and the STANDBY indicator goes off.
The CA-MD9R comes on ready to play the source it was for when the power was last turned off.



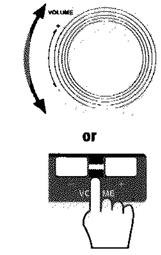
Turning the CA-MD9R Off (Standby)

Press the ⏻/I button again.

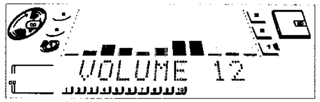
The STANDBY indicator lights up, "GOOD BYE" appears on the display for a while.
The clock time appears when the unit is in the standby mode.

- ☐ Some power (15 watts) is always consumed even though the unit is in standby mode.
- ☐ To switch off the unit completely, unplug the AC power cord from the AC outlet. When you unplug the AC power cord, the clock will be reset to 0:00 immediately, and preset stations will be erased in a few days.

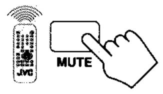
Adjusting the Volume



Turn the VOLUME control clockwise to increase the volume or counterclockwise to decrease it.
When using the Remote Control, press the VOLUME + button to increase the volume or press the VOLUME – button to decrease it.
You can adjust the volume level between 0 (minimum) and 50 (maximum).



For private listening
Connect a pair of headphones to the PHONES jack. No sound comes out of the speakers.
Be sure to turn down the volume before connecting or putting on headphones.

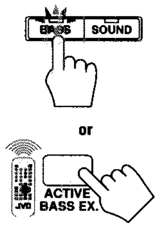


MUTING Function

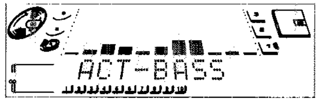
Press the MUTE button on the Remote Control to turn down the volume level to 0.
To restore the volume level to its previous level, press this button again.

Reinforcing the Bass Sound

With the Active Bass Extension, you can maintain the richness and fullness of the bass sound regardless of how low you set the volume.
You can use this function only for playback.



To use this function, press the BASS button on the unit or the ACTIVE BASS EX. (Active Bass Extension) button on the Remote Control. "ACT-BASS" appears on the display and the indicator on the BASS button lights up.



To cancel this function, press the button again. "OFF" appears on the display and the indicator on the BASS button goes off.

Sound Modes

The CA-MD9R has some preset sound effects that give you control of the way your music sounds, so you can tailor it for your room and for the quality of the source.
You can also create your own customized S.E.A. (Sound Effect Amplifier) settings and store it in the unit's memory.

❑ You cannot use the Sound Modes for recording.

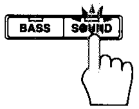
Live surround modes

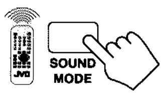
D.(Dance) CLUB	Increases resonance and bass.
HALL	Adds depth and brilliance to the sound, like in a concert hall.
STADIUM	Adds clarity and spreads the sound, like in an outdoor stadium.

S.E.A. effect modes

ROCK	Boosts low and high frequencies.
POP	Good for vocal music.
CLASSIC	Best for classical music.

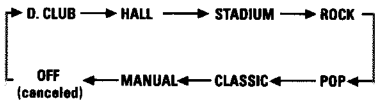
Selecting a Sound Mode





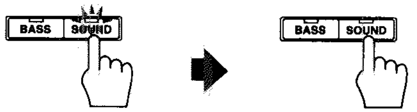
1. **Press the SOUND button on the unit or SOUND MODE button on the Remote Control repeatedly until the Sound Mode you want appears on the display.**

Each time you press the button, the Sound Modes change as follow:



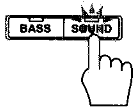
When a Sound Mode is selected, the indicator on the SOUND button lights up.

To cancel the Sound Mode, press the SOUND or SOUND MODE button repeatedly until "OFF" appears on the display.

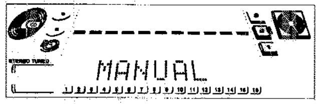


Creating Your Own Customized Sound Mode

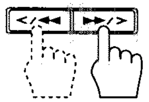
You can create you own customized Sound Mode and store it in the CA-MD9R's memory.
To do the following procedure, use the buttons on the unit.



1. **Press the SOUND button repeatedly until "MANUAL" appears on the display.**

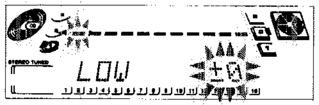


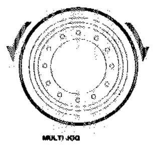
2. **Press the SET button while "MANUAL" is shown on the display.**



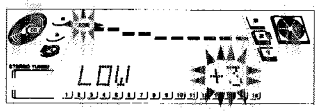
3. **Press the </◄◄ or ►►/> button to select the frequency range you want to adjust, while the adjustable frequency range (LOW, MID, HIGH) in shown on the display.**
   ❑ You can adjust 3 different frequency ranges:

LOW:	for the low frequency range
MID:	for the middle frequency range
HIGH:	for the high frequency range





4. **Rotate the MULTI JOG dial to adjust the level of the selected range.**
   ❑ The level can be adjusted between +3 and –3 in seven steps.



5. **Press the SET button again to memorize your settings.**

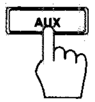
To select your own customized Sound Mode, press the SOUND button repeatedly (or the SOUND MODE button on the Remote Control) so that "MANUAL" appears on the display.

Using an External Component

Listening to an External Component

By playing the sound from an external component through the CA-MD9R, you can gain control over how the music sounds. Once the connected component is playing through the CA-MD9R, you can apply the sound effects.

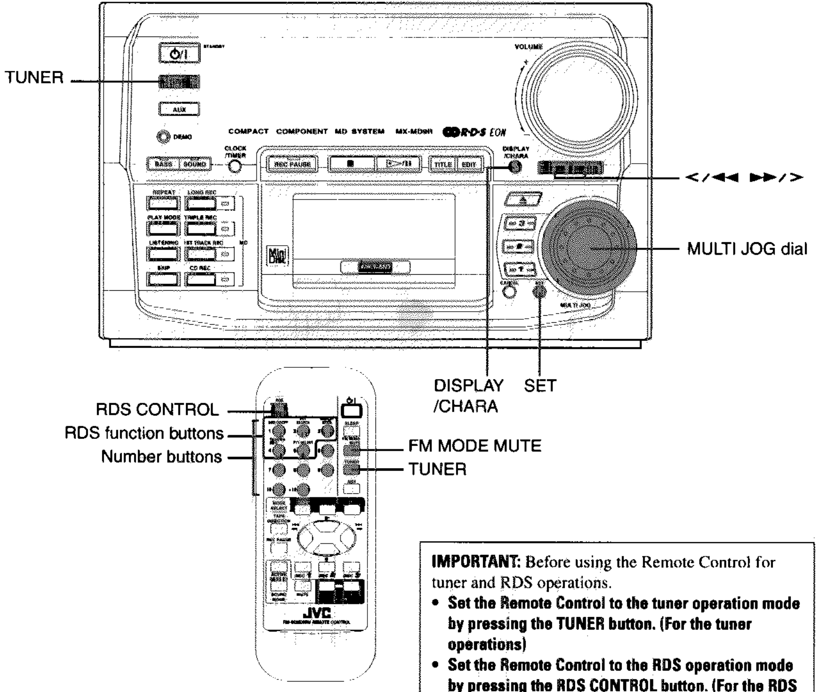
❑ First make sure that the external component is properly connected to the CA-MD9R. (See page 5.)



1. **Press the AUX button on the unit or on the Remote Control.**
   "AUX" appears on the display.
2. **Start playing on the external component.**
   ❑ To operate the external component, refer to the manual supplied with it.
3. **Adjust the VOLUME control and select a Sound Mode if you want.**

To cancel the setting
Change the source by starting any one of the CA-MD9R's built-in sound sources, such as the CD Player or MD Recorder.

Using the Tuner



IMPORTANT: Before using the Remote Control for tuner and RDS operations.

- **Set the Remote Control to the tuner operation mode by pressing the TUNER button. (For the tuner operations)**
- **Set the Remote Control to the RDS operation mode by pressing the RDS CONTROL button. (For the RDS operations)**

You can listen to both FM and AM (MW/LW) stations. Stations can be tuned in manually, automatically, or from preset memory storage.

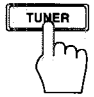
❑ Before listening to the radio:
  - Check that both the FM and AM (MW/LW) antennas are firmly connected. (See page 4.)

One Touch Radio

Just press the TUNER button to turn on the unit and start playing the most recent station tuned in.

❑ You can switch from any other sound source to the radio by pressing the TUNER button.

Tuning in a Station



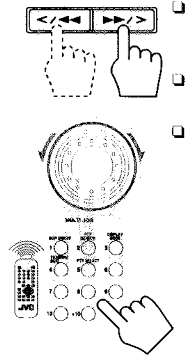
Press the TUNER button to turn on the radio.
The frequency of the previously selected station appears on the display.

Switching between Frequency Bands

Press the TUNER button on the unit.

Each time you press the button, the band alternates between FM and AM (MW/LW).

❑ If you press the TUNER button on the Remote Control, the band will not alternate.



Selecting a Radio Station

❑ Press the </◄◄ or ►►/> button on the unit repeatedly.
The frequency changes in one step increments. "TUNED" appears on the display when a station is tuned in.

❑ Press and hold the </◄◄ or ►►/> button for a few seconds, the frequency changes continuously until a station is tuned in. "TUNED" appears on the display.

❑ Possible only after presetting stations (For presetting methods, see "Presetting Stations" below).

Using the unit

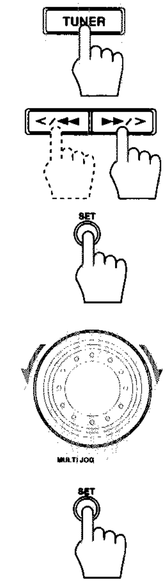
Select a preset channel by rotating the MULTI JOG dial clockwise or counterclockwise.

Using the Remote Control

1. **Press the TUNER button so that you can receive the most recent station tuned in.**
2. **Press the number button for the preset station you want.**

❑ Example: For channel 5, press 5. For channel 15, press +10 then 5. For channel 20, press +10, then 10. For channel 30, press +10 two times, then 10.

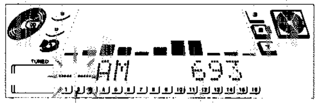
Presetting Stations



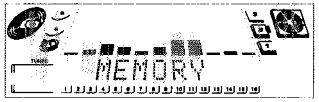
You can store up to 30 stations (FM and AM (MW/LW)).
To do the following procedure, use the buttons on the unit.

Note: In some cases, test frequencies have been already memorized for the tuner since the factory examined the tuner preset function before shipment. This is not a malfunction. You can preset the stations you want into memory by following the presetting method.

1. **Tune to a station you want to preset (see "Tuning in a Station" on page 11).**
2. **Press the SET button.**
   On the display, "– –" (preset number position) will flash for 5 seconds.
   ❑ During these 5 seconds while the indication on the display is flashing, you can assign a channel number to the station and enter it into the memory.



3. **Rotate the MULTI JOG dial clockwise or counterclockwise to select a preset number.**
4. **Press the SET button again.**
   "MEMORY" appears on the display and the selected station will be preset in the channel number you have specified.

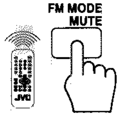


❑ If a station has been previously stored in the same channel number, it will be erased and the newly selected station will be stored.

5. **Repeat steps 1 to 4 for each station you want to store in memory using different preset numbers.**

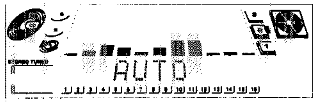
CAUTION: If the unit is unplugged or if a power failure occurs, the preset stations will be erased in a few days. If this happens, preset the station again.

Changing the FM Reception Mode



When an FM stereo broadcast is hard to receive or noisy, press the FM MODE MUTE button on the Remote Control (after pressing the TUNER button on the Remote Control) so that "MONO" appears on the display. (The STEREO indicator goes off.) Reception improves, but there are no stereo effects.
In this monaural mode, noise comes out while tuning in stations (since muting is canceled).

To restore the stereo effect, press the FM MODE MUTE button again so that "AUTO" appears on the display.
In this stereo mode, no noise comes out while tuning in stations, and you can hear stereo sounds when a program is broadcast in stereo (the STEREO indicator lights up).



Receiving FM Stations with RDS

RDS (Radio Data System) allows the FM stations to send additional signals along with their regular program signals. For example, the stations send their station names and information about what type of program they broadcast, such as sports or music, etc.
When tuned to an FM station providing the RDS signals, the RDS indicator lights up and the station name, if sent, is displayed.
One convenient RDS service is "Enhanced Other Networks (EON)" (see page 16). This allows the unit to automatically switch to a program type of your choice when one starts in your local area.

- ☐ Not all FM stations provide RDS service, nor do all RDS stations provide the same services. If in doubt, check with local radio stations for details on RDS services in your area.
- ☐ RDS may not work correctly if the station you are tuned in is not transmitting the signals properly or if the signal strength is weak.

What Information RDS Can Provide

The CA-MD9R can use the following RDS service.

PS (Program Service name)
Identifies each station by a name.

RT (Radio Text)
Allows the RDS station to send text messages that appear on the display.

PTY (Program Type) (see next page for a description of the PTY codes)
Identifies the type of RDS program. This allows you to locate a specific type of program being broadcast.

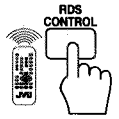
EON (Enhanced Other Networks)
Provides the information about the program types sent by the other RDS stations than the one being received.

Description of the PTY codes:

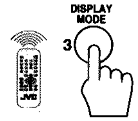
NONE:	Undefined.
NEWS:	News.
AFFAIRS:	Topical program expanding or enlarging upon the news — debate, or analysis.
INFO:	Program the purpose of which is to impart advice in the widest sense.
SPORT:	Program concerned with any aspect of sports.
EDUCATE:	Educational programs.
DRAMA:	All radio plays and serials.
CULTURE:	Programs concerning any aspect of national or regional culture, including language, theatre, etc.
SCIENCE:	Programs about the natural sciences and technology.
VARIED:	Used for mainly speech-based programs like quizzes, panel games and personality interviews.
POP M:	Commercial music of current popular appeal.
ROCK M:	Rock music.
M.O.R. M:	Current contemporary music considered to be "easy-listening."
LIGHT M:	Instrumental music, and vocal or choral works.
CLASSICS:	Performances of major orchestral works, symphonies, chamber music, etc.
OTHER M:	Music not fitting into any of the other categories.
WEATHER:	Weather reports and forecasts.
FINANCE:	Stock Market reports, commerce, trading etc.
CHILDREN:	Programs targeted at a young audience.
SOCIAL A:	Programs about sociology, history, geography, psychology and society.
RELIGION:	Religious programs.
PHONE IN:	Involving members of the public expressing their views either by phone or at a public forum.
TRAVEL:	Travel information.
LEISURE:	Programs about recreational activities.
JAZZ:	Jazz music.
COUNTRY:	Songs which originate from, or continue the musical tradition of the American Southern States.
NATIONAL:	Current popular music of the nation or region in that country's language.
OLDIES:	Music from the so-called "golden age" of popular music.
FOLK M:	Music which has its roots in the musical culture of a particular nation.
DOCUMENT:	Program concerning factual matters, presented in an investigative style.
TEST:	Broadcast when testing emergency broadcast equipment or receivers.
ALARM!:	Emergency announcement.

Note:
Classification of the PTY codes for some FM stations may be different from the above list.

Changing the RDS Information



You can see RDS information on the display while listening to an FM station.
To view RDS information on the display, press the DISPLAY MODE button after pressing the RDS CONTROL button on the Remote Control. Each time you press the button the display changes to show the following information:

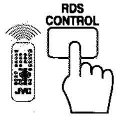


PS (Program Service):	Station names will be displayed. "no PS" appears if no signal is sent.
↓	
PTY (Program Type):	Types of broadcast programs will be displayed. "no PTY" appears if no signal is sent.
↓	
RT (Radio Text):	Text message sent by stations will be displayed. "no RT" appears if no signal is sent.
↓	
Station Frequency:	Station frequencies. (non-RDS information)

❑ While RDS information is being received from a station, "wait PS", "wait PTY", or "wait RT" may appear on the display.

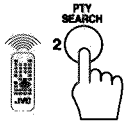
Searching for Programs by PTY Codes (PTY Search)

One of the advantages of the RDS service is that you can locate a particular kind of program by specifying the PTY codes.
❑ The PTY Search function is applicable to preset stations only.
❑ PTY Search can be used even while AM (MW/LW) broadcasts are being received.

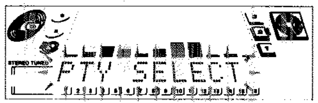


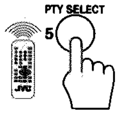
To search for a program using the PTY codes, follow this procedure, using the Remote Control:

1. Press the RDS CONTROL button.
The number buttons on the Remote Control are set for the RDS operations.



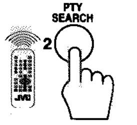
2. Press the PTY SEARCH button.
"PTY SELECT" flashes on the display.





3. Press the PTY SELECT button to select a PTY code while "PTY SELECT" is flashing on the display.
Each time you press the button, the PTY codes change as follows (refer also to the list on page 14):

NONE → NEWS → AFFAIRS → INFO → SPORT → EDUCATE → DRAMA → CULTURE → SCIENCE → VARIED → POP M → ROCK M → M.O.R. M → LIGHT M → CLASSICS → OTHER M → WEATHER → FINANCE → CHILDREN → SOCIAL A → RELIGION → PHONE IN → TRAVEL → LEISURE → JAZZ → COUNTRY → NATIONAL → OLDIES → FOLK M → DOCUMENT → TEST → ALARM! → (back to the beginning)



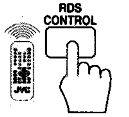
4. Press the PTY SEARCH button again.
While searching, "SEARCH" and the selected PTY code alternate on the display.
The unit searches 30 preset channels, stops when it finds the one you have selected, and tunes in that station.

To continue searching after the first stop:
Press the PTY SEARCH button again while the indications on the display are flashing.
If no program is found, "NOT FOUND" appears on the display and the unit returns to the last received station.

To stop searching any time during the process:
Press the PTY SEARCH button while searching.

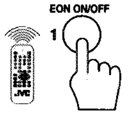
EON Function

The EON function allows the unit to switch temporarily to a broadcast program of your choice (NEWS, TA, and/or INFO) from a different station except when you are listening to a non-RDS stations (all AM (MW/LW) and some FM stations).
❑ The EON indicator lights up while receiving a station with the EON code.
❑ EON Standby reception is applicable for preset stations only.

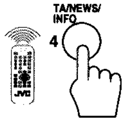


To set EON Standby reception, use the Remote Control:

1. Press the RDS CONTROL button.
The number buttons on the Remote Control are set for the RDS operations.



2. Press the EON ON/OFF button.
The last EON data type selected — TA/NEWS/INFO — lights up.



3. Press the TA/NEWS/INFO button repeatedly until the EON data type you want is selected.
TA: Identifies that a traffic announcement is being broadcast in your area.
NEWS: News
INFO: Program the purpose of which is to impart advice in the widest sense.
Each time you press the TA/NEWS/INFO button, the EON data types change as follows:

TA NEWS INFO → TA → NEWS →
INFO → TA NEWS → NEWS INFO →
TA INFO → (back to the beginning)

As soon as your selection is entered, the unit goes into EON Standby reception mode.

To cancel the EON function, press the EON ON/OFF button again so that the TA/NEWS/INFO indicator goes off.
❑ If you cancel the EON function while receiving a program selected by the EON function, the unit goes back to the previously tuned station.

When this unit carries out EON Standby reception, this unit functions as follows:

CASE 1
If there is no station broadcasting the program you have selected

The unit continues tuning in the current station.

↓

When a station starts broadcasting the program you have selected, the unit automatically switches to the station. The indicator of received PTY code starts flashing.

↓

When the program is over, the unit goes back to the previously tuned station, but still remains in EON Standby reception mode.

CASE 2
If there is a station broadcasting the program you have selected

The unit tunes in the program. The indicator of received PTY code starts flashing.

↓

When the program is over, the unit goes back to the previously tuned station, but still remains in EON Standby reception mode.

Notes:

- EON data sent from some stations may not be compatible with this unit.
- While listening to a program tuned in by the EON function, the station does not change even if another network station starts broadcasting a program of the same EON data.
- While listening to a program tuned in by the EON function, you can only use the EON ON/OFF and DISPLAY MODE button as the tuner operation buttons.
- If the stations alternate intermittently between the station tuned in by the EON function and the currently tuned station ("WAITING" flashes on the display), press the EON ON/OFF button to cancel the EON standby reception mode.
  If you do not press the button, the currently tuned station is received finally, and the indication of the EON data type flashing on the display disappears.

When program of the selected EON data is completed, "EON END" appears and the unit automatically goes back to the previously tuned station.

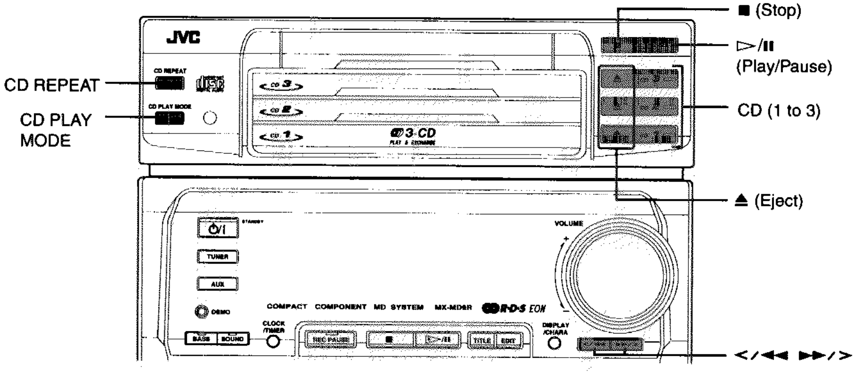
Alarm Function

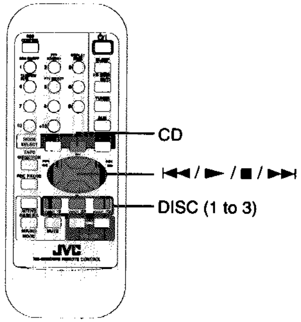
If an ALARM (Emergency) signal is received from a station while listening to the radio, the unit automatically switches to the station broadcasting the ALARM signal ("ALARM!" will flash on the display) except when you are listening to non-RDS stations (all AM (MW/LW) and some FM stations).

Test Function

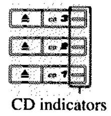
The TEST signal is used for testing the ALARM function.
Therefore it makes the unit work in the same way as the ALARM signal does. If an TEST signal is received, the unit automatically switches to the station broadcasting the TEST signal ("TEST" will flash on the display).

Using the CD Player


■ (Stop)
▷/II
(Play/Pause)
CD (1 to 3)
▲ (Eject)
</◀◀ ▶▶/>
CD REPEAT
CD PLAY
MODE
JVC
CD REPEAT
CD PLAY MODE
CD 3
CD 2
CD 1
3-CD
STANDBY
TUNER
AUX
DEMO
BASS
SOUND
CLOCK
/TIMER
REC PAUSE
TITLE
EDIT
VOLUME
COMPACT COMPONENT MD SYSTEM MX-MD9R
RDS EON
DISPLAY
/CHARA

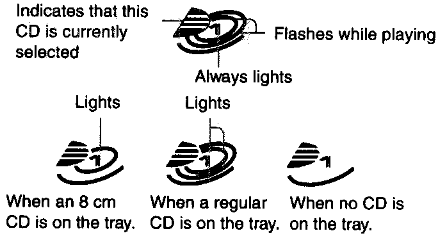

CD
◀◀/▶/■/▶▶
DISC (1 to 3)
JVC

IMPORTANT: Before using the Remote Control for the CD operations, **set the Remote Control to the CD operation mode by pressing the CD button.**


CD indicators

CD indicators on the unit
Each of the CD buttons (1 to 3) has the CD indicator.
When a CD is loaded on the tray, the corresponding indicator turns on.

CD indicators on the display


Indicates that this
CD is currently
selected
Flashes while playing
Always lights
Lights
Lights
When an 8 cm
CD is on the tray.
When a regular
CD is on the tray.
When no CD is
on the tray.

The Player built in the CA-MD9R has 3 CD trays. You can use Continuous, Random, Program or Repeat Play for the CDs on CD1, CD2 and CD3 trays. Repeat Play can repeat all the tracks on all the CDs, the tracks on one of the CDs or one track on one CD. There is also the Disc Lock function, prohibiting CD ejection (see page 66.)

The Quickest Way to Start a CD Is with the One Touch Operation

The power comes on, and operations are done automatically.

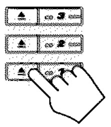
❑ Press the ▷/II button (or the ► button on the Remote Control).
  - If there is a CD on the currently selected tray, playback begins from the first track of this CD.
  - If there is no CD on the currently selected tray, playback begins from the first track of the following CD.
  - If there is no CD on any of the CD trays, "CD NO DISC" appears on the display for a few seconds. Put a CD on one of the trays and press the ▷/II button (or the ► button on the Remote Control)

❑ Press one of the CD buttons (1 to 3) (or one of the DISC buttons (1 to 3) on the Remote Control).
  - If there is a CD on the CD tray for the CD number you have selected, playback begins from the first track of that CD. If there is no CD on the CD tray, "CD NO DISC" appears on the display for a few seconds. Put a CD on that tray, then press the CD button (1 to 3) for that tray (or the corresponding DISC button (1 to 3) on the Remote Control).

❑ Press the ≜ button.
  - The power comes on, and the corresponding tray comes out automatically.

Using the CD Player

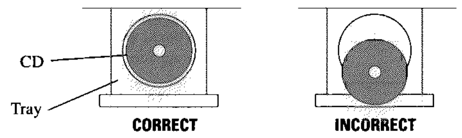
Loading CDs



1. Press the ≜ button on the CD Player you want to load the CD onto.

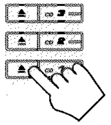
The CD tray comes out automatically.

2. Place a CD, with its label side up, onto the tray.



❑ To put an 8 cm CD on a tray, insert it so that it is aligned with the groove in the tray's center.

Note: To avoid malfunctions when you play a CD, place the CD in the right place at the center of the tray.



3. Press the ≜ button to close the tray.

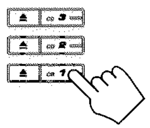
4. Repeat steps 1 to 3 to load other CDs on the other trays.

❑ To continue putting CDs on the other trays, even if a tray is open, by pressing the ≜ button of another CD tray, the open tray will close automatically, and the new CD tray will slide out.

Playing CDs

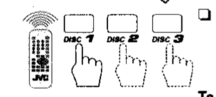
You can play the CDs continuously. (Continuous Play)

1. Prepare the CDs.



2. Press the CD button (1 to 3) (or the DISC button (1 to 3) on the Remote Control) for the CD you want to play.

The first track of the selected CD will begin playing.
When the selected CD finishes playing, the next CD begins playing automatically.
When the last CD has finished playing, the unit stops playing the CDs.



❑ When you press the CD button (1 to 3) (or DISC button (1 to 3) on the Remote Control) while a tray is open, the open tray will close automatically and Continuous Play playback begins from the first track of the CD.

To use Continuous Play from the first track of the currently selected CD, just press the ▷/II button (or the ► button on the Remote Control).

Playing order of CDs

❑ When playback starts from CD1, the playing order is CD1 → CD2 → CD3. When CD3 has finished, the CD Player selects CD1 and stops.

❑ When playback starts from CD2, the playing order is CD2 → CD3 → CD1. When CD1 has finished, the CD Player selects CD2 and stops.

❑ When playback starts from CD3, the playing order is CD3 → CD1 → CD2. When CD2 has finished, the CD Player selects CD3 and stops.
  - If no CD is on a tray, the CD Player skips that tray.

To stop play, press the ■ button.
To remove the CD, press the ≜ button for the CD tray you want to open.
To pause, press the ▷/II button on the unit. The indicator above the tray starts flashing.
To cancel pause, press the ▷/II button again (or press the ► button on the Remote Control).

Changing CDs while Playing

You can replace a CD not playing, while another CD is playing.

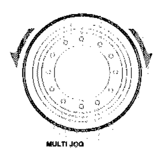
1. Press the ≜ button for the CD not playing.

The tray comes out.

2. Replace the CD on the tray.

3. Press the ≜ button to close the tray.

Selecting a Track

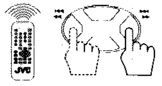


Using the unit

Rotate the MULTI JOG dial while playing or pausing.

- Rotate the MULTI JOG dial clockwise to select the next tracks.
- Rotate the MULTI JOG dial counterclockwise to select the previous tracks.

❑ If you rotate the MULTI JOG dial over the last track of the selected CD, the unit jumps to the first track of the next CD.



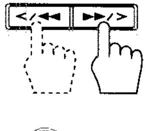
Using the Remote Control

Press the ⏮ or ⏭ button while playing or pausing.

❑ Each time you press the ⏮ or ⏭ button, the track changes by one.
  - Press the ⏭ button to go ahead one track at a time.
  - Press the ⏮ button to go back one track at a time.

❑ Holding down the ⏮ or ⏭ button allows you to change tracks continuously.

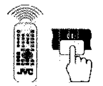
Selecting a Passage within a Track (on the unit only)



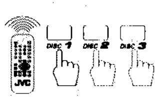
Press and hold the </◄◄ or ►►/> button while playing or pausing.

- Hold the ►►/> button to fast forward the track, and release the button when you reach the passage you want to hear.
- Hold the </◄◄ button to reverse the track, and release the button when you reach the passage you want to hear.

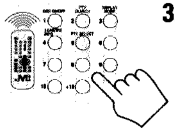
Locating a Track with the Remote Control Directly



Using the number buttons on the Remote Control allows you to go directly to the beginning of any track.



1. **Press the CD button.**
   The Remote Control is set to the CD operation mode.
2. **Press the DISC button (1 to 3) for the CD containing the track you want to listen to.**
   ❑ Example: For the third CD, press DISC 3.



3. **Enter the number of the track you want to listen to with the number buttons.**
   The selected track starts playing.
   ❑ Example: For track 5, press 5. For track 15, press +10 then 5. For track 20, press +10, then 10. For track 32, press +10 three times, then 2.

Programing the Playing Order of the Tracks

You can change the order in which the CDs and tracks play. (Program Play)

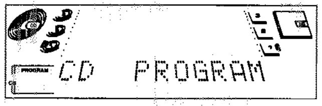
❑ You can program up to 32 steps in any order from among the loaded CDs.

❑ You can only make or change a program when the CD Player is stopped.

CD PLAY MODE

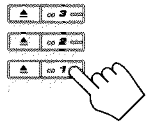
Using the unit

1. **Press the CD PLAY MODE button repeatedly on the CD Player until the PROGRAM indicator lights up on the display.**
   "CD PROGRAM" also appears on the display.
   ❑ If you have already made a program, the last step of the previous program is displayed instead of "CD PROGRAM" unless you have erased the program.

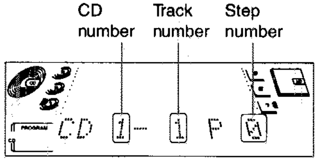


❑ Each time you press the CD PLAY MODE button, CD play mode changes as follows:

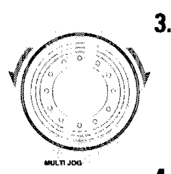
→ **CD PROGRAM** → **CD RANDOM** → Off (Continuous Play) → (back to the beginning)



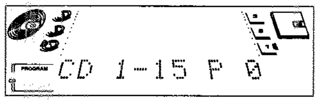
2. **Press one of the CD buttons (1 to 3) to select a CD.**
   The CD and track numbers start flashing.



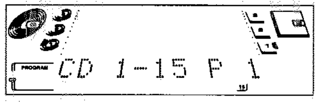
❑ If the CD and track numbers stop flashing, press the CD button (1 to 3) again.

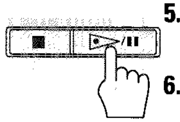


3. **Rotate the MULTI JOG dial to select a track.**
   The track number appears on the display.



4. **Press the SET button.**
   The CD and track numbers stop flashing, and the step number is shown.



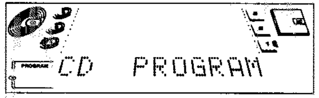


5. **Repeat steps 2 to 4 to select the other tracks for the program.**
   ❑ To select another track from the same CD, repeat steps **3** and **4**.
   ❑ To select another track from a different CD, repeat steps **2** and **4**.
6. **Press the ▷/II button.**
   The unit plays the tracks in the order you have programed them.

CD PLAY MODE

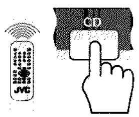
Using the Remote Control

1. **On the unit, press the CD PLAY MODE button repeatedly until the PROGRAM indicator lights up on the display.**
   "CD PROGRAM" also appears on the display.
   ❑ If you have already made a program, the last step of the previous program is displayed instead of "CD PROGRAM" unless you have erased the program.

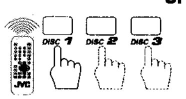


❑ Each time you press the CD PLAY MODE button, CD play mode changes as follows:

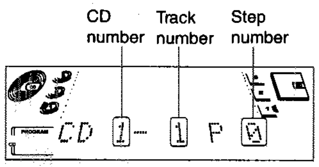
→ **CD PROGRAM** → **CD RANDOM** → Off (Continuous Play) → (back to the beginning)



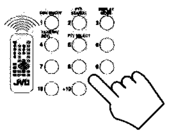
2. **Press the CD button on the Remote Control.**
   The Remote Control is set to the CD operation mode.



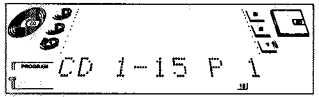
3. Press one of the DISC buttons (1 to 3).
The CD and track numbers start flashing.



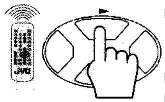
❑ If the CD and track numbers stop flashing, press the DISC button (1 to 3) again.



4. Press the number buttons to select the tracks.
❑ Example: For track 5, press 5. For track 15, press +10 then 5. For track 20, press +10 then 10. For track 32, press +10 three times, then 2.
The CD and track numbers stop flashing, and the step number is displayed.



5. Repeat steps 3 and 4 to select other tracks for the program.



6. Press the ► button.
The unit plays the tracks in the order you have programed them.

❑ If you try to program a 33rd step, "CD FULL" will appear on the display.
❑ If you try to program a track from an empty tray, or a track number that does not exist on the CD (for example, selecting track 14 on a CD that only has 12 tracks), such entries are ignored.
❑ You can skip to a particular program step during Program Play. Rotate the MULTI JOG dial clockwise or counterclockwise on the unit, or press the ⏮ or ⏭ buttons on the Remote Control.
❑ To play the Program Play repeatedly, press the CD REPEAT button. For details, see "Repeating a Selection or CDs" on page 24.

To stop playing, press the ■ button.
To exit Program Mode, press the CD PLAY MODE button twice to change to Continuous Play mode while the CD Player is stopped.

Checking the Program

While the CD Player is stopped, use the ⏮ or ⏭ buttons on the Remote Control to check the contents of the program.
Each time you press the ⏭ button, the program contents are shown on the display in the programed order. Pressing the ⏮ button displays the programed steps in the reverse order.

Changing the Program

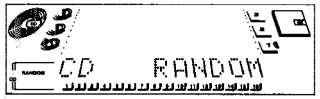
Only possible while the CD Player is stopped.
To delete a program, press the CANCEL button on the unit. Each time you press the button, the last step is erased.
If you eject the CD, the steps programed from that disc are also erased.
To add a track to the program, follow the procedure above (on either the unit or the Remote Control). The new tracks are added to the end of the program.

Random Play

The tracks of all loaded CDs will play at random.

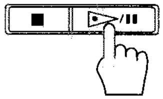
CD PLAY MODE

1. While the CD player is stopped, press the CD PLAY MODE button repeatedly until the RANDOM indicator appears on the display.
"CD RANDOM" also appears on the display.



❑ Each time you press the CD PLAY MODE button, CD play mode changes as follows:

→ **CD PROGRAM** → **CD RANDOM** → Off (Continuous Play) → (back to the beginning)



2. Press the ▷/II button on the unit (or the ► button on the Remote Control).
The tracks of all the CDs are played at random.
When all of the tracks have been played, the CD Player stops.

❑ You can skip a particular track during Random Play. Rotate the MULTI JOG dial clockwise, or press the ⏭ button on the Remote Control.
❑ To play the Random Play repeatedly, press the CD REPEAT button. For details, see "Repeating a Selection or CDs" (below).

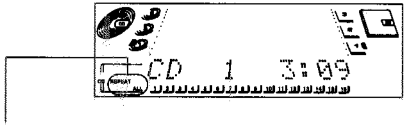
To cancel Random Play, press the ■ button, then press the CD PLAY MODE button to select another mode.

Repeating a Selection or CDs

You can have all the CDs, the program or the individual track currently playing repeat as many times as you like. (Repeat Play)

Press the CD REPEAT button on the unit.
❑ Each time you press the button, the Repeat Modes change as follows:

→ **REPEAT ALL** → **REPEAT 1 CD** → **REPEAT 1** → canceled → (back to the beginning)

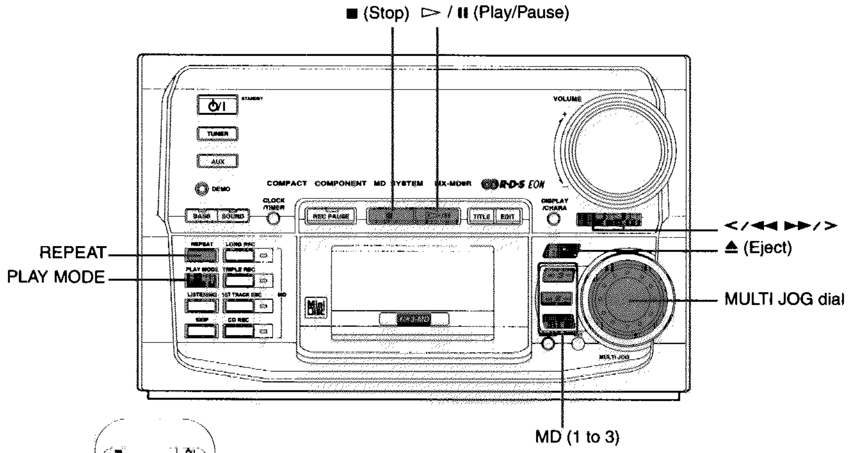


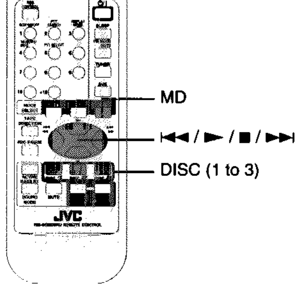
REPEAT ALL: Repeats all the tracks on the CDs, or all the tracks in the program.
REPEAT 1 CD: Repeats all the tracks on one CD.
REPEAT 1: Repeats one track on one CD.

❑ "REPEAT ALL" and "REPEAT 1" remain on the display even when you change the play mode.
❑ The three Repeat Modes above can be selected during Continuous Play, however, during Program Play and Random Play, you can only select "REPEAT ALL" or "REPEAT 1" ("REPEAT 1 CD" is not available).

To exit Repeat Mode, press the CD REPEAT button until the Repeat Mode indicator on the display goes off.

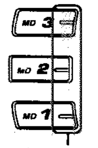
Using the MD Recorder (Playing)


■ (Stop)
▷ / ❚❚ (Play/Pause)
REPEAT
PLAY MODE
</◀◀ ▶▶/>
≜ (Eject)
MULTI JOG dial
MD (1 to 3)


MD
⏮ / ▶ / ■ / ⏭
DISC (1 to 3)

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

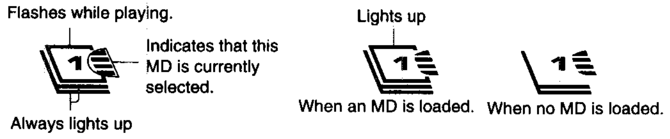
IMPORTANT: Before using the Remote Control for the MD operations, **set the Remote Control to the MD operation mode by pressing the MD button.**


MD indicators

MD indicator on the unit

Each of the MD buttons (1 to 3) has the MD indicator.
When an MD is loaded in the loading slot, the corresponding indicator turns on.

MD indicators on the display


Flashes while playing.
Indicates that this MD is currently selected.
Always lights up
Lights up
When an MD is loaded.
When no MD is loaded.

The MD Recorder has 3 MD loading slots. You can use Continuous, Random, Program or Repeat Play for the MDs in MD1, MD2 and MD3 loading slots. Repeat Play can repeat all the tracks on all the MDs, the tracks on one of the MDs or one track on one MD. There is also the Disc Lock function, prohibiting MD ejection (see page 66.)

The Quickest Way to Start a MD Is with the One Touch Operation

The power comes on, and operations are done automatically.

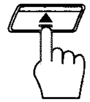
❑ Press the ▷/❚❚ button (or the ▶ button on the Remote Control).
- If there is an MD in the currently selected loading slot, playback begins from the first track of this MD.
- If there is no MD on the currently selected loading slot, playback begins from the first track of the following MD.
- If there is no MD in any of the loading slots, "MD NO DISC" appears on the display for a few seconds. Put an MD in one of the loading slots and press the ▷/❚❚ button (or the ▶ button on the Remote Control).

❑ Press one of the MD buttons (1 to 3) (or one of the DISC buttons (1 to 3) on the Remote Control).
- If there is an MD in the loading slot for the MD number you have selected, playback begins from the first track of that MD. If there is no MD in the loading slot, "MD NO DISC" appears on the display for a few seconds. Put an MD in that loading slot, then press the MD button (1 to 3) for that loading slot (or the corresponding DISC button (1 to 3) on the Remote Control).

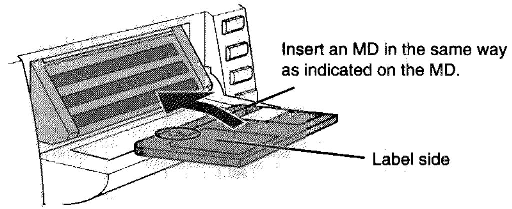
❑ Press the ≜ button.
- The power comes on, and the loading slot cover opens automatically.

Using the MD Recorder

Loading MDs

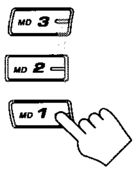


1. **Press the ≜ button to the right of the MD loading slots.**
   The MD loading slot cover opens automatically.
2. **Place up to 3 MDs, into the slots as in the illustration below.**


Insert an MD in the same way as indicated on the MD.
Label side

3. **Press the ≜ button to close the loading slot cover.**

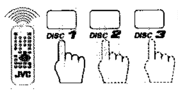
CAUTIONS:
- ***DO NOT close the loading slot cover by hand; otherwise, the loading mechanism will be damaged.***
- ***DO NOT load an MD incorrectly. Always follow the indication on the MD.***



Playing MDs

You can play the MDs continuously. (Continuous Play)

1. **Prepare the MDs.**
2. **Press the MD button (1 to 3) (or the DISC button (1 to 3) on the Remote Control) for the MD you want to play.**
   The first track of the selected MD will begin playing.
   When the selected MD finishes playing, the next MD will begin playing automatically.
   When the last MD has finished playing, the unit will stop playing the MDs.



❑ When you press the MD button (1 to 3) (or DISC button (1 to 3) on the Remote Control) while the loading slot cover is open, the cover will close automatically and Continuous Play playback begins from the first track of the MD.

To use Continuous Play from the first track of the currently selected MD, just press the ▷/II button (or ▶ button on the Remote Control).

Playing order of MDs

❑ When playback starts from MD1, the playing order is MD1 → MD2 → MD3. When MD3 has finished, the MD Recorder selects MD1 and stops.

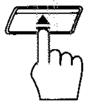
❑ When playback starts from MD2, the playing order is MD2 → MD3 → MD1. When MD1 has finished, the MD Recorder selects MD2 and stops.

❑ When playback starts from MD3, the playing order is MD3 → MD1 → MD2. When MD2 has finished, the MD Recorder selects MD3 and stops.
- If no MD is in the loading slot, the MD Recorder skips that slot.

To pause, press the ▷/II button.
To cancel pause, press the ▷/II button again (or press the ▶ button on the Remote Control).
To stop play, press the ■ button.

Changing MDs While Playing

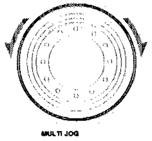
You can replace an MD not being played, while another MD is playing.



1. **Press the ▲ button.**
   The MD loading slot cover opens.
2. **Replace the MD in the loading slot.**
3. **Press the ▲ button to close the loading slot cover.**

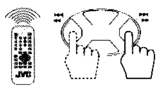
Note: When you open the MD loading slot cover to replace MDs, the slot of the currently playing MD appears empty. Do not put any MD in this slot. If you put an MD in this slot and close the cover, the cover automatically opens after the unit check that there has already been an MD in this slot and "OCCUPIED" appears on the display.

Selecting a Track



Using the unit
Rotate the MULTI JOG dial while playing or pausing.
- Rotate the MULTI JOG dial clockwise to select the next tracks.
- Rotate the MULTI JOG dial counterclockwise to select the previous tracks.

❑ If you rotate the MULTI JOG dial over the last track of the selected MD, the unit jumps to the first track of the next MD.

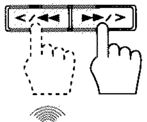


Using the Remote Control
Press the I◀◀ or ▶▶I button while playing or pausing.

❑ Each time you press the I◀◀ or ▶▶I button, the track changes by one.
- Press the ▶▶I button to go ahead one track at a time.
- Press the I◀◀ button to go back one track at a time.

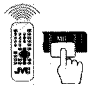
❑ Holding down the I◀◀ or ▶▶I button allows you to change tracks continuously.

Selecting a Passage within a Track (on the unit only)

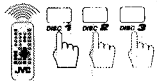


Press and hold the </◀◀ or ▶▶/> button while playing or pausing.
- Hold the ▶▶/> button to fast forward the track, and release the button when you reach the passage you want to hear.
- Hold the </◀◀ button to reverse the track, and release the button when you reach the passage you want to hear.

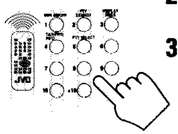
Locating a Track with the Remote Control Directly



Using the number buttons on the Remote Control allows you to go directly to the beginning of any track.



1. **Press the MD button.**
   The Remote Control is set to the MD operation mode.
2. **Press the DISC button (1 to 3) for the MD containing the track you want to listen to.**
   ❑ Example: For the third MD, press DISC 3.



3. **Enter the number of the track you want to listen to with the number buttons.**
   The selected track starts playing.
   ❑ Example: For track 5, press 5. For track 15, press +10 then 5. For track 20, press +10, then 10. For track 32, press +10 three times, then 2.

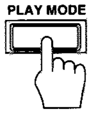
Programing the Playing Order of the Tracks

You can change the order in which the MDs and tracks play. (Program Play)

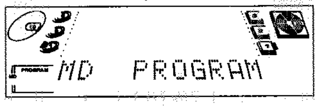
❑ You can program up to 32 steps in any desired order from among the loaded MDs.

❑ You can only make or change a program when the MD Recorder is stopped.

Using the unit

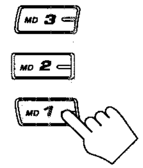


1. **Press the PLAY MODE button repeatedly on the MD Recorder until the PROGRAM indicator lights up on the display.**
   "MD PROGRAM" also appears on the display.
   ❑ If you have already made a program, the last step of the previous program is displayed instead of "MD PROGRAM" unless you have erased the program.

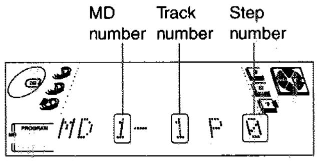


❑ Each time you press the PLAY MODE button, MD play mode changes as follows:

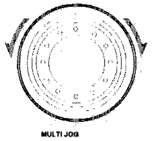
→ **MD PROGRAM** → **MD RANDOM** → Off (Continuous Play) → (back to the beginning)



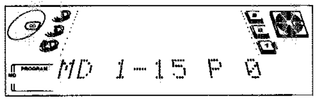
2. Press one of the MD buttons (1 to 3) to select an MD.
The MD and track numbers start flashing.



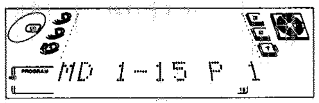
- ❑ If the MD and track numbers stop flashing, press the MD button (1 to 3) again.



3. Rotate the MULTI JOG dial to select a track.
The track number appears on the display.

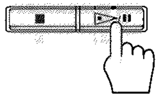


4. Press the SET button.
The MD and track numbers stop flashing, and the step number is shown.



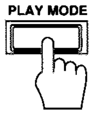
5. Repeat steps 2 to 4 to select the other tracks for the program.

- ❑ To select another track from the same MD, repeat steps **3** and **4**.
- ❑ To select another track from a different MD, repeat steps **2** and **4**.



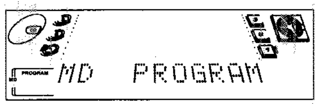
6. Press the ▷/II button.
The unit plays the tracks in the order you have programed them.

Using the Remote Control



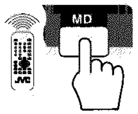
1. On the unit, press the PLAY MODE button repeatedly until the PROGRAM indicator lights up on the display.
"MD PROGRAM" also appears on the display.

- ❑ If you have already made a program, the last step of the previous program is displayed instead of "MD PROGRAM" unless you have erased the program.

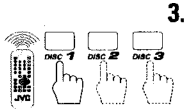


- ❑ Each time you press the PLAY MODE button, MD play mode changes as follows:

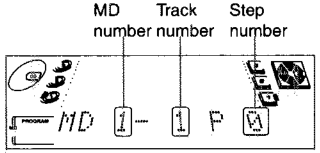
→ **MD PROGRAM** → **MD RANDOM** → Off (Continuous Play) → (back to the beginning)



2. Press the MD button on the Remote Control.
The Remote Control is set to the MD operation mode.



3. Press one of the DISC buttons (1 to 3).
The MD and track numbers start flashing.

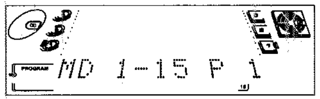


- ❑ If the MD and track numbers stop flashing, press the DISC button (1 to 3) again.

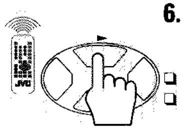
4. Press the number buttons to select the tracks.

- ❑ Example: For track 5, press 5. For track 15, press +10 then 5. For track 20, press +10 then 10. For track 32, press +10 three times, then 2.

The MD and track numbers stop flashing, and the step number is displayed.



5. Repeat steps 3 and 4 to select other tracks for the program.



6. Press the ► button.
The unit plays the tracks in the order you have programed them.

- ❑ If you try to program a 33rd step, "MD FULL" will appear on the display.
- ❑ If you try to program a track from an empty loading slot, or a track number that does not exist on the MD (for example, selecting track 14 on an MD that only has 12 tracks), such entries are ignored.
- ❑ You can skip to a particular program step during Program Play. Rotate the MULTI JOG dial clockwise or counterclockwise on the unit, or press the I◄◄ or ►►I buttons on the Remote Control.
- ❑ To play the Program Play repeatedly, press the REPEAT button. For details, see "Repeating a Selection or MDs" on page 31.

To stop playing, press the ■ button.
To exit Program Mode, press the PLAY MODE button twice to change to Continuous Play mode while the MD Recorder is stopped.

Checking the Program

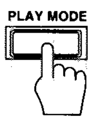
While the MD Recorder is stopped, use the I◄◄ or ►►I buttons on the Remote Control to check the contents of the program.
Each time you press the ►►I button, the program contents are shown on the display in the programed order. Pressing the I◄◄ button displays the programed steps in the reverse order.

Changing the Program

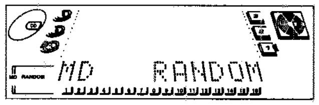
Only possible while the MD recorder is stopped.
To delete a program, press the CANCEL button on the unit. Each time you press the button, the last step is erased.
If you open the loading slot cover, the program is erased.
To add a track to the program, follow the procedure above (on either the unit or the Remote Control). The new tracks are added to the end of the program.

Random Play

The tracks of all loaded MDs will play at random.

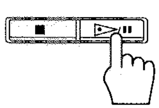


1. **While the MD Recorder is stopped, press the PLAY MODE button repeatedly until the RANDOM indicator appears on the display.**
   "MD RANDOM" also appears on the display.



❑ Each time you press the PLAY MODE button, MD play mode changes as follows:

→ **MD PROGRAM** → **MD RANDOM** → Off (Continuous Play) → (back to the beginning)



2. **Press the ▷/II button on the unit (or the ► button on the Remote Control).**
   The tracks of all the MDs are played at random.
   When all of the tracks have been played, the MD Recorder stops.

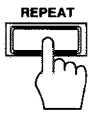
❑ You can skip a particular track during Random Play. Rotate the MULTI JOG dial clockwise, or press the ►►I button on the Remote Control.

❑ To play the Random Play repeatedly, press the REPEAT button. For details, see "Repeating a Selection or MDs" (below).

To cancel Random Play, press the ■ button, then press the PLAY MODE button to select another mode.

Repeating a Selection or MDs

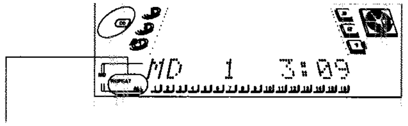
You can have all the MDs, the program or the individual selection currently playing repeat as many times as you like. (Repeat Play)



Press the REPEAT button on the unit.

❑ Each time you press the button, the Repeat Modes change as follows:

→ **REPEAT ALL** → **REPEAT 1 MD** → **REPEAT 1** → Canceled → (back to the beginning)



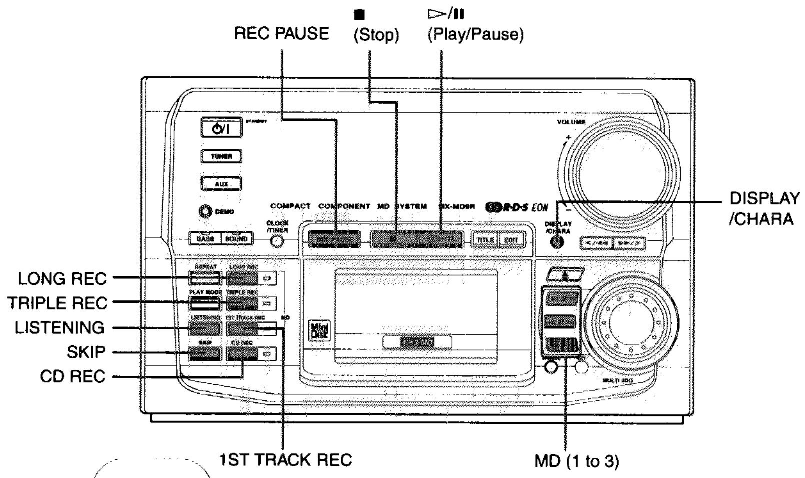
REPEAT ALL: Repeats all the tracks on the MDs, or all the tracks in the program.
REPEAT 1 MD: Repeats all the tracks on one MD.
REPEAT 1: Repeats one track on one MD.

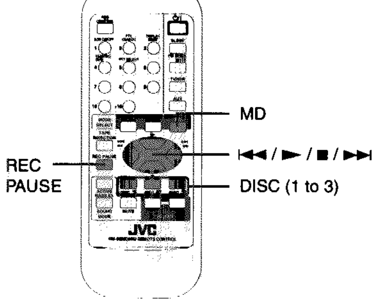
❑ "REPEAT ALL" and "REPEAT 1" remain on the display even when you change the play mode.

❑ The three Repeat Modes above can be selected during Continuous Play, however, during Program Play and Random Play, you can only select "REPEAT ALL" or "REPEAT 1" ("REPEAT 1 MD" is not available).

To exit Repeat Mode, press the REPEAT button until the Repeat Mode indicator on the display goes off.

Using the MD Recorder (Recording)





IMPORTANT: Before using the Remote Control for the MD operations, **set the Remote Control to the MD operation mode by pressing the MD button.**

Your CA-MD9R is supplied with very powerful functions to record on the MDs. (For Editing functions, see the next chapter from page 41.)
You can do the following:

- Recording any source
  - **Standard Recording** (just record what you are listening)
  - **LONG REC:** To record a long radio program or another source continuously on 3 MDs.

- Recording CDs
  CD REC: To record automatically one CD on an MD by just pressing one button (One Touch Recording)

  TRIPLE REC: To record automatically 3 CDs loaded on the CD trays onto 3 MDs.

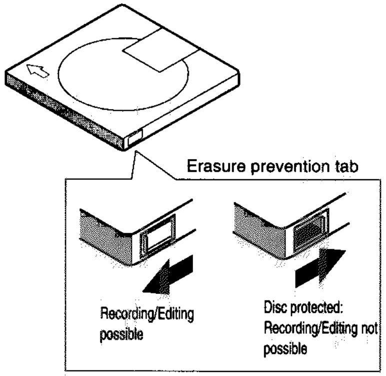
  LISTENING: Lets you choose which track to record from CDs onto the MD while listening.

  1ST TRACK REC: Lets you automatically record the first track of each CD loaded on the CD trays.

Things to Know Before You Start Recording

- ☐ **It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic embodied therein.**
- ☐ Press the DOLBY B NR button — the indicator lights up — to reduce tape hiss.
- ☐ When you record onto partially recorded MD, its contents are not erased or overwritten. The recording starts from the point following the last recorded track of the MD.
  If you want to record such an MD from the beginning, you have to erase its contents first (see "ALL ERASE Function" on page 48).
- ☐ When recording a source using the Standard Recording (see page 34), you can also record the same source on a tape using the Standard Recording procedure for the Cassette Deck (see page 55).
- ☐ The recording level is automatically set correctly, so it is not affected by the VOLUME control. Thus, during recording you can adjust the sound you are actually listening to without affecting the recording level.
- ☐ When recording, you can hear Sound Modes through the speakers or headphones. However, the sound is recorded without Sound Modes (see page 9).

- ☐ **To avoid erasing important recordings**
  Recordable MDs have an accidentally erasure prevention tab so that important recordings are not accidentally erased. When you finish recording or editing, slide open the erasure prevention tab on the cartridge side surface. New recording or editing is now no longer possible. To redo recording or editing, return the tab to the closed position.


Erasure prevention tab
Recording/Editing possible
Disc protected: Recording/Editing not possible

About the track marks

When playing an MD, you can move among the tracks using the </◄◄ or ►►/> button or even select directly a track using the Remote Control.
You can do that because there is a mark recorded at the front of each track enabling you to locate the track. This mark is called a "track mark" and the portion between two adjacent track marks is called a "track".

- ☐ **When recording from a digital source** such as the CD Player, a track mark is recorded automatically at the beginning of each track.
- ☐ **When recording from a analog source** such as the radio, no track mark is recorded. This means that, when playing this MD, the MD Recorder will regard the entire recording as one track (track 1). You will not be able to select directly a song or navigate through them.
  You can put track marks manually.

To put a track mark manually, during the recording, press the SET button at the place you want to put a track mark.

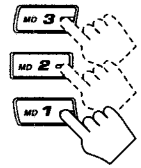
The MD Recorder will also consider a blank of 3 seconds or more as a blank separating 2 tracks and consequently put a track mark.

Note:
To add track mark afterwards (when the recording is over), you can use the DIVIDE function (see page 42) to divide a long recording.

Standard Recording

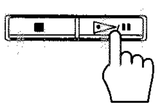
To record any source currently playing use the following procedure.

- ☐ You can also record the same source on the tape at the same time. (See page 55 for tape recording.)



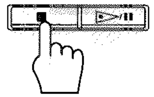
1. **Insert a blank or recordable MD into one of the MD loading slots.**
2. **Press the MD button (1 to 3) (or the DISC button (1 to 3) on the Remote Control) corresponding to the slot number you put the MD, then press the ■ button.**
3. **Choose and start playing the source you want to record (CD, Tuner, Cassette Deck or the external component).**

4. **Press the REC PAUSE button on the MD Recorder.**
   The indicator on the button lights up.
5. **Press the ▷ / ❚❚ button to start the recording.**



- ☐ If some tracks have been recorded on the MD, this MD Recorder searches for the end point of the previous recording, and starts recording after the end point.

To pause any time during recording process, press the ▷ / ❚❚ button (or the REC PAUSE button on the Remote Control). The track mark will be recorded.
To cancel the pause, press the ▷ / ❚❚ button again (or the ► on the Remote Control).

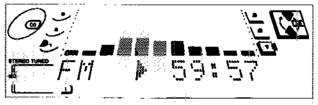


To stop recording, press the ■ button.

Changing the Display Mode

You can check the remaining time of the MD while recording.
Press and hold the DISPLAY/CHARA button on the unit. While you are holding the button, the remaining time of the MD will be shown on the display (as well as the source name you are recording).

DISPLAY /CHARA



Long Recording (LONG REC)

The LONG REC function allows you to record any source continuously onto 3 MDs, enabling you to make long recording of radio program, or to record three CDs continuously, etc.
The Recording begins on MD1 (MD in the MD1 slot) and continues on MD2, then MD3.

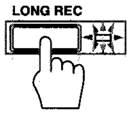
1. Insert the MDs you want to record on into the MD loading slots.

❑ Always use the MD1 loading slot.
If there is no MD in the MD1 slot (or if the MD is not available for recording: play only MD or full MD), the recording is automatically canceled when you press the LONG REC button in step 3.

2. Prepare the source you want to record from.

For CD recording: Put CD(s) on the CD tray(s). Since the recording begins from CD1, be sure that a CD is loaded on the CD1 tray.
You need to select the CD Player as the source by pressing the CD1 button then the ■ button.

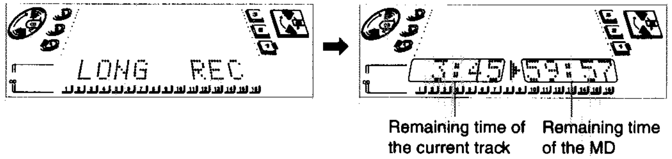
For recording the other sources (Tuner, Cassette Deck or the external component):
Tune in the station or play the source you want to record.



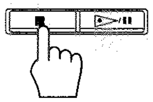
3. Press the LONG REC button.

The indicator next to the LONG REC button lights up and the recording begins automatically.
If you are recording from a CD, the CD on the CD1 tray starts playing automatically.

- **If you are recording from a CD:**
The display changes as follows:


LONG REC
3:45
59:57
Remaining time of the current track
Remaining time of the MD

- **If you are recording from another source,** "LONG REC" does not appears on the display even if the unit is recording the source.



To stop recording, press the ■ button.

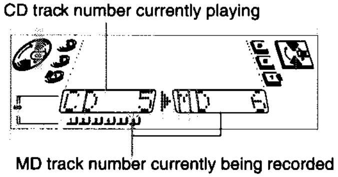
Note: When an MD is fully recorded, the MD Recorder automatically switches to the next MD.
While switching the MDs, no recording will be made.

Changing the Display Mode

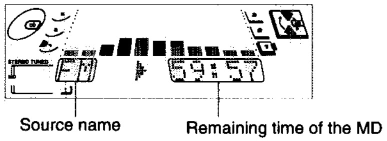
DISPLAY /CHARA

If you press and hold the DISPLAY/CHARA button on the unit while recording, the display shows the following.

- **While recording CDs**


CD track number currently playing
CD 5
MD 6
MD track number currently being recorded

- **While recording the other sources**


FM
59:57
Source name
Remaining time of the MD

One Touch CD Recording (CD REC)

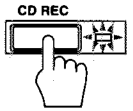
The CD REC function allows you to easily record CDs on the MD1.

1. Prepare CDs and a recordable MD into the MD1 loading slot.

❑ You can load the CDs on any CD trays, but always load the recordable MD into the MD1 loading slot. If not, this function does not work.

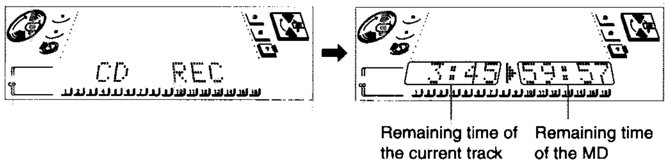
2. Be sure that the CD you want to start recording from is selected as the playing source.

❑ If not, select it by pressing the corresponding CD button (1 to 3), then the ■ button.



3. Press the CD REC button on the MD Recorder.

The indicator next to the CD REC button lights up and the recording begins automatically.
Recording will stop when the MD in the MD1 loading slot is fully recorded.


CD REC
3:45
59:57
Remaining time of the current track
Remaining time of the MD

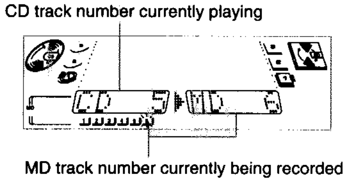
❑ If you press the CD REC button while playing a CD, the recording starts from the beginning of the current track, and only the current track is recorded.

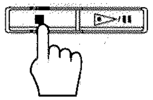
❑ If you press the CD REC button after making a program, you can automatically record the program.

Changing the Display Mode

DISPLAY /CHARA

You can check the CD track number and the MD track number while recording.
Press and hold the DISPLAY/CHARA on the unit. While holding the button, the following information appears on the display.


CD track number currently playing
CD 5
MD 6
MD track number currently being recorded



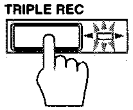
To stop recording, press the ■ button.

Three CD Recording (TRIPLE REC)

The TRIPLE REC function allows you to easily record three CDs onto three MDs.

1. Prepare CDs and recordable MDs.

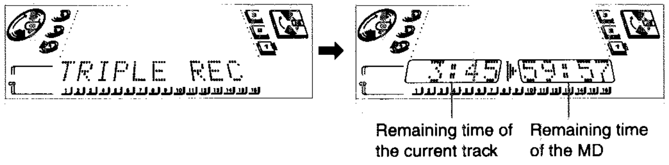
- ❑ Always place a CD on the CD1 tray and insert an MD into the MD1 loading slot. If not, this function does not work.
- ❑ If you record from two CDs onto two MDs, use CD1 and 2 trays and MD1 and 2 slots.



2. Press the TRIPLE REC button.

The indicator next to the TRIPLE REC button lights up and the recording begins automatically.

- ❑ The tracks of the CD1 are recorded onto the MD1, CD2 onto MD2, and CD3 onto MD3.

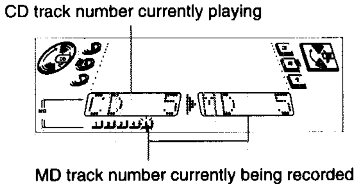

TRIPLE REC
3:45
59:57
Remaining time of the current track
Remaining time of the MD

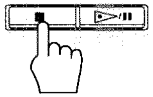
DISPLAY /CHARA

Changing the Display Mode

You can check the CD track number and the MD track number while recording.

Press and hold the DISPLAY/CHARA on the unit. While holding the button, the following information appears on the display.


CD track number currently playing
CD 5
MD 5
MD track number currently being recorded



To stop recording, press the ■ button.

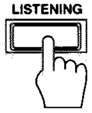
Listening Edit Recording (LISTENING)

The LISTENING function allows you to make a program while listening and checking each track of the loaded CDs, then to start recording the program.

- ❑ You can program up to 32 tracks.

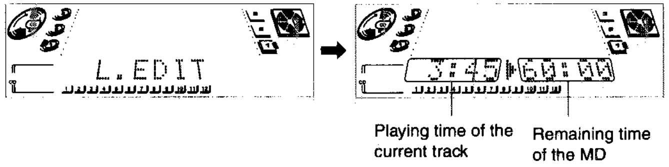
1. Prepare CDs and a recordable MD into the MD1 loading slot.

- ❑ Always place a CD on the CD1 tray and insert the MD into the MD1 loading slot. If not, this function does not work.

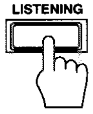


2. Press the LISTENING button.

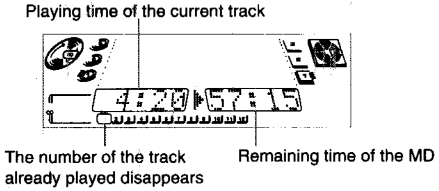
"L. EDIT" appears on the display and the unit plays the first track of the CD1.

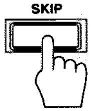

L. EDIT
3:45
60:00
Playing time of the current track
Remaining time of the MD

3. Decide if you want to include the current track in the program or skip it.

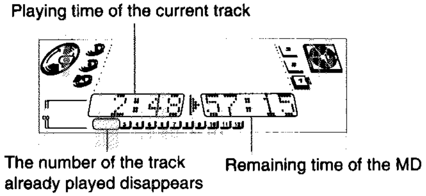


- ■ **To include the current playing track in the program, press the LISTENING button again.**
  The current track is programed and the next track starts playing.


Playing time of the current track
4:20
57:15
The number of the track already played disappears
Remaining time of the MD



- ■ **To skip the current track, press the SKIP button.**
  The current playing track is not programed and the next track starts playing.

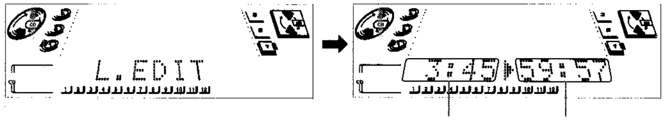

Playing time of the current track
2:48
57:15
The number of the track already played disappears
Remaining time of the MD

- ❑ If you do not press the LISTENING or SKIP button, the unit will play the current track repeatedly.

4. Repeat step 3 to program other tracks.

You can check the contents of all loaded CDs.

5. **When you finish checking all CDs or if there is no more remaining time for recording on the MD, recording starts automatically.**
"L. EDIT" appears on the display and recording starts.



Remaining time of the current track
Remaining time of the MD

❑ If the remaining time of the MD becomes short, this unit will search a track fitting into the remaining time. To include the selected track in the program, press the LISTENING button. To find another track, press the SKIP button.

To finish programing and to start recording before checking all the tracks of the loaded CDs, press the CD REC button. "L.EDIT" appears and the recording starts.

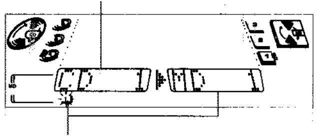
To stop recording, press the ■ button.

To erase the program, press the ■ button while checking the contents of the loaded CDs.

Changing the Display Mode

DISPLAY
/CHARA

You can check the CD track number and the MD track number while recording.
Press and hold the DISPLAY/CHARA button on the unit. While holding the button, the following information appears on the display.



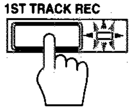
CD track number currently playing

MD track number currently being recorded

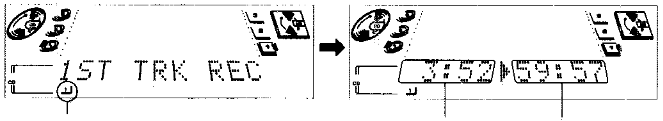
First Track Recording (1ST TRACK REC)

The 1ST TRACK REC function allows you to record the first track of each loaded CD. You can, for example, make a directory of all your best CDs.

1. **Prepare CDs, and a recordable MD into the MD1 loading slot.**
   ❑ Always place a CD on the CD1 tray and insert the recordable MD into the MD1 loading slot. If not, this function does not work.



2. **Press the 1ST TRACK REC button.**
   The indicator next to the 1ST TRACK REC button lights up and the recording starts.



Appears only when using an 8 cm CD

Remaining time of the current track
Remaining time of the MD

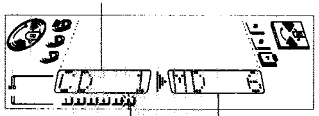
When the first track of the CD1 is recorded, the first track of the CD2 will be recorded. Recording continues until the first track of each loaded CD is recorded.

3. **Replace the CDs on the trays not selected.**
   ❑ You can change CDs to continue the First Track Recording using more than 3 CDs.

Changing the Display Mode

DISPLAY
/CHARA

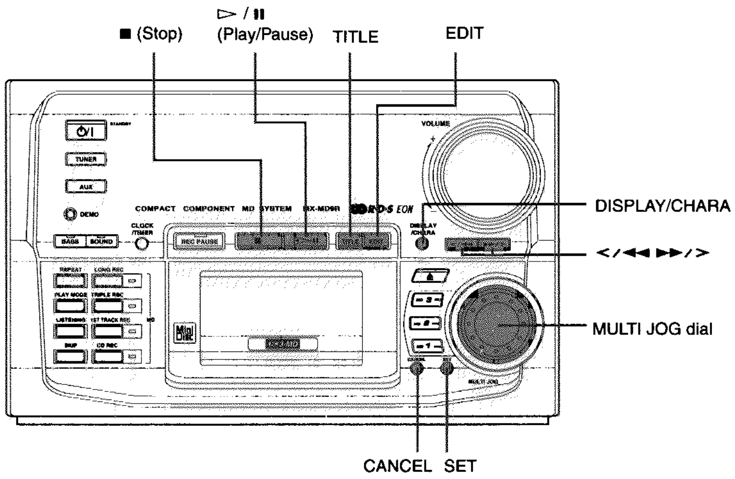
You can check the CD track number and MD track number while recording.
Press and hold the DISPLAY/CHARA button on the unit. While holding the button, the following information appears on the display.



CD track number currently playing

MD track number being recorded

Using the MD Recorder (Editing)



One of the great features of the MD is its capacity to be edited freely. The CA-MD9R offers you the following edit functions.

DIVIDE (see page 42):
To divide one track into two separate tracks.

JOIN (see page 44):
To join two adjacent tracks into one track.

MOVE (see page 45):
To move one track to another place (within the same disc).

ERASE (see page 47):
To erase one specific track.

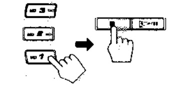
ALL ERASE (see page 48):
To erase all the tracks.

Note:
By using the DIVIDE, ERASE, and JOIN functions, you can also erase an unwanted portion of a track. (see page 48)

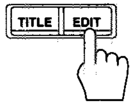
TITLE (see page 49):
To put a name to an MD and a track.

DIVIDE Function

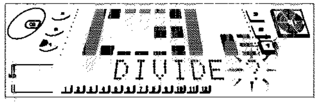
This function allows you to divide one track into two separate tracks. It is useful, for example, when you want to add track marks at a certain point within a track or if you want to separate a recording.



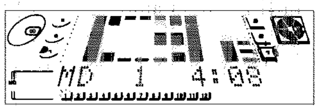
1. **Be sure that the MD you want to edit is in one of the MD loading slots.**
2. **Select the MD you want to edit.**
   Press the corresponding MD button (1 to 3), then the ■ button.
3. **Press the EDIT button repeatedly until "DIVIDE" appears on the display.**
   ❑ Each time you press the button, the MD editing functions change as follow:

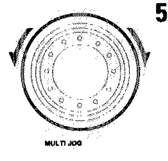


→ DIVIDE → JOIN → MOVE → ERASE
Canceled ← ALL ERASE ←

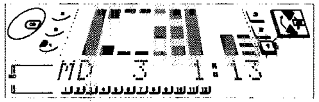


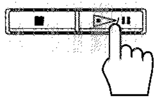
4. **Press the SET button.**
   The playing time of the first track of the MD appears on the display.





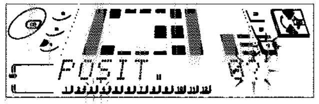
5. **Rotate the MULTI JOG dial to select the track you want to divide.**
   Ex. When you want to divide track 3.



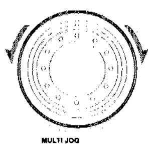


6. **Press the ▷ / ❚❚ button.**
   Playback starts.
   ❑ If you have selected a wrong track, rotate the MULTI JOG dial to select the correct track.

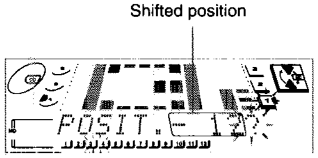
7. **Press the SET button when you find the point where you want to divide the track.**
   The MD Recorder repeats the selected point — a portion of 3 seconds length following the dividing point.



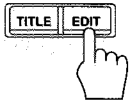
❑ If the dividing point is satisfactory, go to step **9**.
❑ If the dividing point is not satisfactory, go to step **8**.



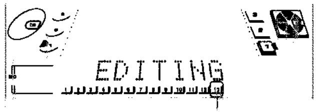
8. Rotate the MULTI JOG dial to precisely adjust the dividing point.
You can shift the dividing point up to ±128. This range (±128) corresponds to approximately ±8 seconds from the original point (Position 0).



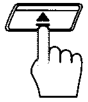
When you stop rotating the MULTI JOG dial, the unit repeats the newly selected dividing point. When you find the right position, go to step **9**.



9. Press the EDIT button.



Total track number increases.



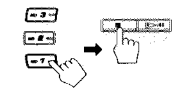
10. Press the ▲ button to eject the MD.
"WRITING" appears while the modification you have made is being recorded on the MD.

To join the divided track again, see the JOIN function on page 44.

Note: If "TRACK PROTECTED" appears on the display when you select "DIVIDE," the track is protected and cannot be modified. To cancel this protection, see page 69.

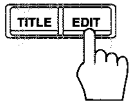
JOIN Function

This function allows you to join two adjacent tracks into one track.



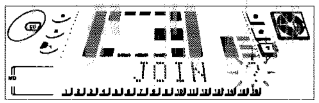
1. Be sure that the MD you want to edit is in one of the MD loading slots.

2. Select the MD you want to edit.
Press the corresponding MD button (1 to 3), then the ■ button.

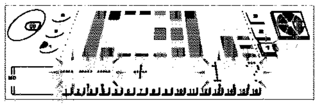


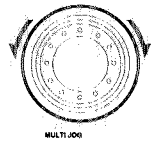
3. Press the EDIT button repeatedly until "JOIN" appears on the display.
❑ Each time you press the button, the MD editing functions change as follow:

→ DIVIDE → JOIN → MOVE → ERASE
Canceled ← ALL ERASE ←

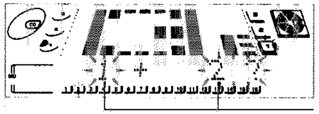


4. Press the SET button.



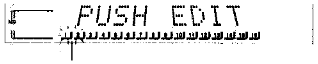


5. Rotate the MULTI JOG dial to select the two adjacent tracks you want to join.



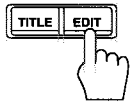
Two adjacent tracks selected

6. Press the SET button.

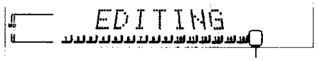


Two adjacent tracks selected

❑ If you have selected wrong tracks, press the CANCEL button then select the correct tracks by rotating the MULTI JOG dial.
❑ If you cancel the editing, press the ▲ button.



7. Press the EDIT button.



Total track number decreases.

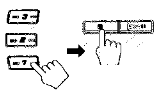
8. Press the ▲ button to eject the MD.
"WRITING" appears while the modification you have made is being recorded on the MD.

To divide the joined tracks, see the DIVIDE function on page 42.

Note: If "TRACK PROTECTED" appears on the display when you select "JOIN," the tracks are protected and cannot be modified. To cancel this protection, see page 69.

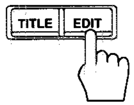
MOVE Function

This function allows you to move a track to the position you prefer on the same MD. It is useful to change the order of the tracks as you like.



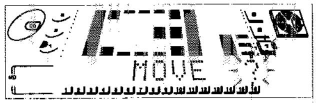
1. **Be sure that the MD you want to edit is in one of the MD loading slots.**

2. **Select the MD you want to edit.**
   Press the corresponding MD button (1 to 3), then the ■ button.

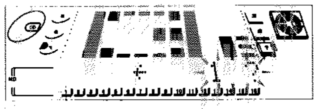


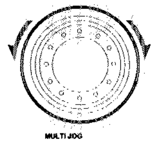
3. **Press the EDIT button repeatedly until "MOVE" appears on the display.**
   - ❑ Each time you press the button, the MD editing functions change as follow:

→ DIVIDE → JOIN → MOVE → ERASE
Canceled ← ALL ERASE ←

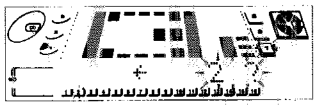


4. **Press the SET button.**



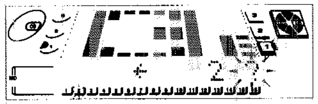


5. **Rotate the MULTI JOG dial to select the track you want to move.**

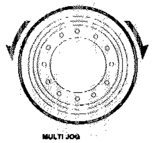


Ex. When you want to move the track 2.

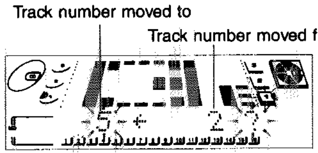
6. **Press the SET button.**



- ❑ If you have selected a wrong track number, press the CANCEL button then select the correct track number again.



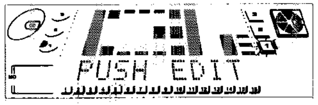
7. **Rotate the MULTI JOG dial to select the position where you want to move the track.**



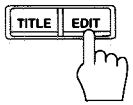
Ex. When you want to move track 2 to the track 5 position.

(Continued to the next page)

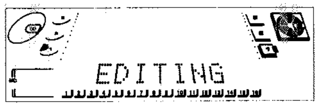
8. **Press the SET button.**

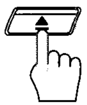


- ❑ If you have selected wrong track numbers, press the CANCEL button then select the correct track numbers again.
- ❑ If you cancel the editing, press the ▲ button.



9. **Press the EDIT button.**



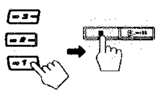


10. **Press the ▲ button to eject the MD.**
    "WRITING" appears while the modification you have made is being recorded on the MD.

Note: If "TRACK PROTECTED" appears on the display when you select "MOVE," the track is protected and cannot be modified. To cancel this protection, see page 69.

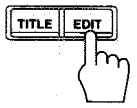
ERASE Function

This function allows you to erase an unwanted track.



1. Be sure that the MD you want to edit is in one of the MD loading slots.

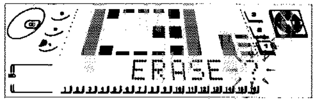
2. Select the MD you want to edit.
Press the corresponding MD button (1 to 3), then the ■ button.



3. Press the EDIT button repeatedly until "ERASE" appears on the display.

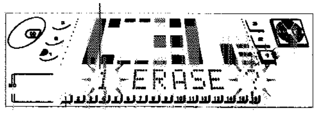
❑ Each time you press the button, the MD editing functions change as follow:

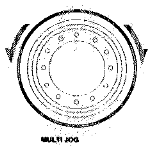
→ DIVIDE → JOIN → MOVE → ERASE
Canceled ← ALL ERASE ←



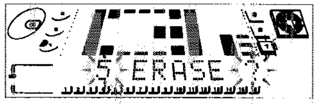
4. Press the SET button.

Track number to be erased



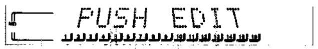


5. Rotate the MULTI JOG dial to select the track you want to erase.



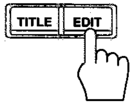
Ex. When you want to erase track 5.

6. Press the SET button.

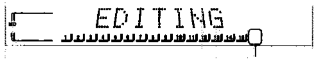


❑ If you have selected a wrong track number, press the CANCEL button then select the correct track number.

❑ If you want to cancel the editing, press the ▲ button.



7. Press the EDIT button.



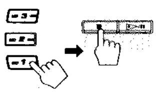
Total track number decreases.

8. Press the ▲ button to eject the MD.
"WRITING" appears while the modification you have made is being recorded on the MD.

Note: If "TRACK PROTECTED" appears on the display when you select "ERASE," the track is protected and cannot be modified. To cancel the protection, see page 69.

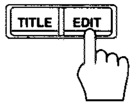
ALL ERASE Function

This function allows you to erase all the tracks on an MD.



1. Be sure that the MD you want to edit is in one of the MD loading slots.

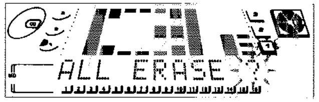
2. Select the MD you want to edit.
Press the corresponding MD button (1 to 3), then the ■ button.



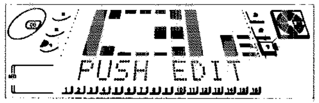
3. Press the EDIT button repeatedly until "ALL ERASE" appears on the display.

❑ Each time you press the button, the MD editing functions change as follow:

→ DIVIDE → JOIN → MOVE → ERASE
Canceled ← ALL ERASE ←

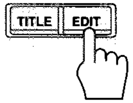


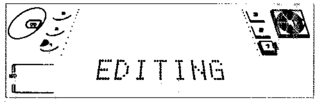
4. Press the SET button.



❑ If you want to cancel the editing, press the ▲ button.

5. Press the EDIT button.





All track numbers disappear.

6. Press the ▲ button to eject the MD.
"WRITING" appears while the modification you have made is being recorded on the MD.

Note: If "TRACK PROTECTED" appears on the display when you select "ALL ERASE," the tracks are protected and cannot be modified. To cancel the protection, see page 69.

Erasing a Portion of a Track

You can erase just a portion of one track by using the DIVIDE, ERASE and JOIN functions.

1. Be sure that the MD you want to edit is in one of the MD loading slots.

2. Select the MD you want to edit.
Press the corresponding MD button (1 to 3), then the ■ button.

3. Divide a track into 3 portions to isolate the portion to erase.
Use the DIVIDE function by referring to page 42.

4. Erase the middle portion.
Use the ERASE function by referring to page 47.

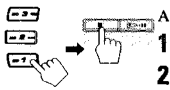
5. Join the two remaining portions.
Use the JOIN function by referring to page 44.

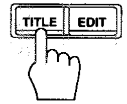
TITLE Function

This function allows you to give a name containing up to 32 characters to each MD and to each track.

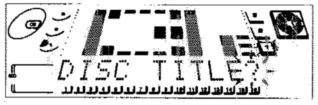
Giving a Title to an MD

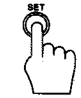
After putting a name to a disc, it will appear when you play the disc.



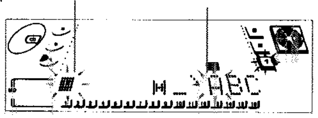


1. **Be sure that the MD you want to edit is in one of the MD loading slots.**
2. **Select the MD you want to edit.**
   Press the corresponding MD button (1 to 3), then the ■ button.
3. **Press the TITLE button.**





4. **Press the SET button.**

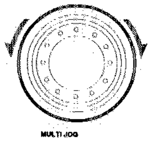


DISPLAY
/CHARA

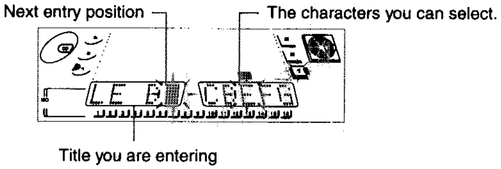
5. **Press the DISPLAY/CHARA button to select the character set you want.**
   ☐ Each time you press the button, the character sets change as follows:

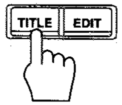
Capital letters and symbols
↓
Small letters and symbols
↓
Numbers

See page 50 for more information about these character sets.



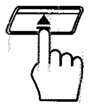
6. **Rotate the MULTI JOG dial to select a character you want.**
7. **Press the SET button to enter the selected character.**
   ☐ If you have entered an incorrect character, press the CANCEL button to cancel the last entry.
8. **Repeat steps 5 to 7 to enter up to 32 characters.**



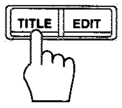


☐ If you want to cancel the editing, press the ≜ button.

9. **Press the TITLE button to memorize the title.**
   "EDITING" appears on the display.

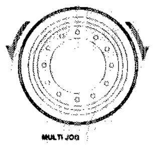


10. **Press the ≜ button to eject the MD.**
   "WRITING" appears while the modification you have made is being recorded on the MD.

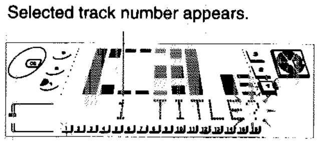


Giving a Title to a Track

1. **Be sure that the MD you want to edit is in one of the MD loading slots.**
2. **Select the MD you want to edit.**
   Press the corresponding MD button (1 to 3), then the ■ button.
3. **Press the TITLE button.**



4. **Rotate the MULTI JOG dial to select the track you want to title.**



5. **Follow steps 4 to 10 of page 49.**

Changing the Title

You can change a title afterward:

1. **Follow steps 1 to 3 of page 49 to change a MD title or steps 1 to 4 above to change a track title.**
2. **Press the SET button.**
3. **Press the <∕◄◄ or ►►∕> button to select the character you want to correct.**
4. **Repeat steps 5 to 7 of page 49.**
5. **Repeat steps 3 and 4 of the current procedure to correct more characters.**
6. **Repeat steps 9 and 10 of page 49.**

To erase all the characters
Press the CANCEL repeatedly in step **3** to erase all the characters, then go to step **6**.

Characters Set for Title Editing:

Capital letters set

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
Z				
(Blank)	!	"	#	$
%	&	'	(	)
*	+	,	−	.
/	:	;	<	=
>	?	@	_	`

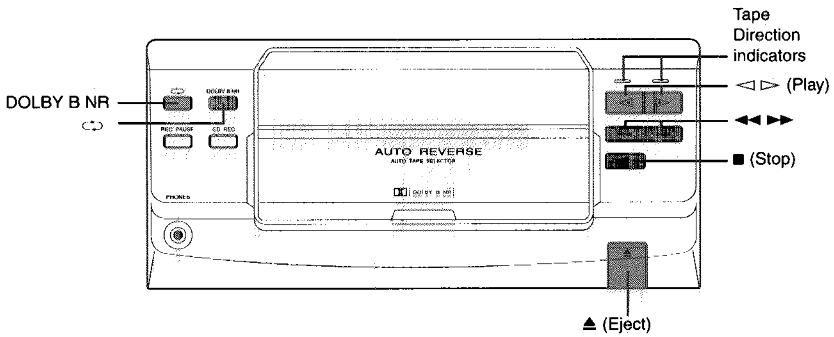
Small letters set

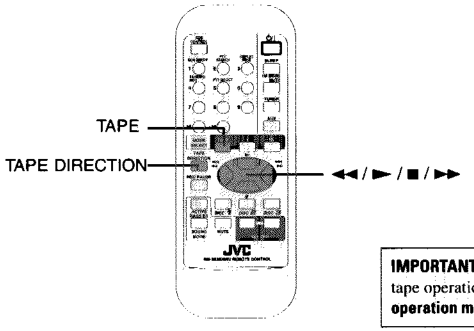
a	b	c	d	e
f	g	h	i	j
k	l	m	n	o
p	q	r	s	t
u	v	w	x	y
z				
(Blank)	!	"	#	$
%	&	'	(	)
*	+	,	−	.
/	:	;	<	=
>	?	@	_	`

Numbers set

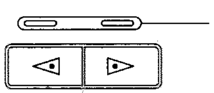
0	1	2	3	4
5	6	7	8	9

Using the Cassette Deck (Playing)





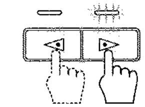
IMPORTANT: Before using the Remote Control for the tape operations, **set the Remote Control to the tape operation mode by pressing the TAPE button.**



Tape Direction Indicator on the unit
The Tape Direction indicator tells you which direction the tape runs.
During playback, the indicator flashes slowly.
During fast left or fast right, the indicator flashes quickly.
During Music Scan mode, the indicator flashes slowly and quickly alternately.

- ☐ Most tapes are now recorded with the Dolby NR system, so first check which type of the Dolby NR system has been used on the tape. Only Dolby B NR is incorporated into the CA-MD9R.
- ☐ With Automatic Tape Selection, you can listen to type I, II (CrO_2) or IV (Metal) tapes without changing any settings.

The use of tapes longer than 120 minutes is not recommended, since characteristic deterioration may occur and these tapes easily jam in the pinch-rollers and the capstans.

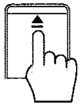


One Touch Play

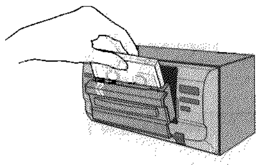
- ☐ Press the ◁ or ▷ button (or the ▶ button on the Remote Control).
  The power comes on and "TAPE" appears on the display. When a tape is already in the cassette holder, the tape is played in the direction of the button pressed. If there is no tape in the cassette holder, the CA-MD9R automatically turns on and "NO TAPE" appears on the display.

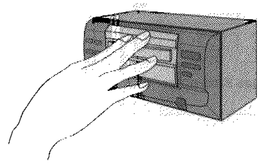
Regular Play

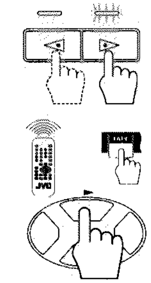
If the power is already on, you can use this basic procedure:



1. **Press down the ≜ button.**
2. **When the cassette holder opens, put a cassette in, with the exposed part of the tape down, toward the base of the CA-MD9R.**
   - ☐ If the cassette holder does not open, turn off the unit, then back on and press down the ≜ button again.

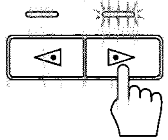




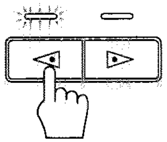


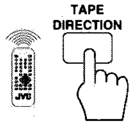
3. **Close the holder gently.**
4. **Press the ◁ or ▷ button (or the ▶ button on the Remote Control).**
   The tape is played in the direction of the button pressed.
   - ☐ The Cassette Deck automatically stops when one side of a tape has finished playing (except if the deck is in auto reverse mode: see the next page).

Playing the front side



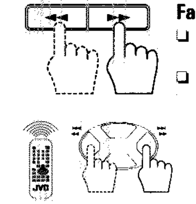
Playing the reverse side





- ☐ To change the tape direction using the Remote Control, press the TAPE DIRECTION button. Each time you press the button, the tape direction alternates.

To stop playing, press the ■ button.
To remove the tape, press down the ≜ button after stopping the play.

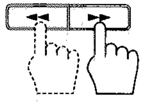


Fast Left and Fast Right

- ☐ While the tape is stopped, press the ◀◀ button and the tape will wind rapidly to the left side of the cassette without playing.
- ☐ While the tape is stopped, press the ▶▶ button and the tape will wind rapidly to the right side of the cassette without playing.

Music Scan

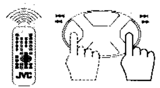
To find the beginning of a music track during play, use the Music Scan function. Music Scan searches for blank portions that usually separate selections, then plays the next selection.



Finding the Beginning of the Current Selection

Press the ◀◀ or ▶▶ button during play.

❑ Make sure that you press the ◀◀ or ▶▶ button in the opposite direction to that in which the tape is playing. Searching stops at the beginning of the current selection, and the current selection starts automatically.



Finding the Beginning of the Next Selection

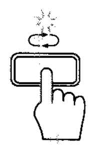
Press the ◀◀ or ▶▶ button during play.

❑ Make sure that you press the ◀◀ or ▶▶ button in the same direction as that in which the tape is playing. Searching stops at the beginning of the next selection, and the next selection starts automatically.

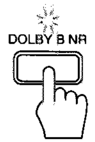
Music Scan works by detecting a 4-second long blank at the beginning of each selection, so it will not work well if your tape has...

- No blank at the beginning of a selection.
- Noise (often caused by much use or poor quality dubbing) which fills the blank.
- Long, very soft passages or pauses in a selection. The scan will detect these as 4-second long blanks. If this happens, just scan again until you reach the selection you want.

Other Useful Features of the Cassette Deck



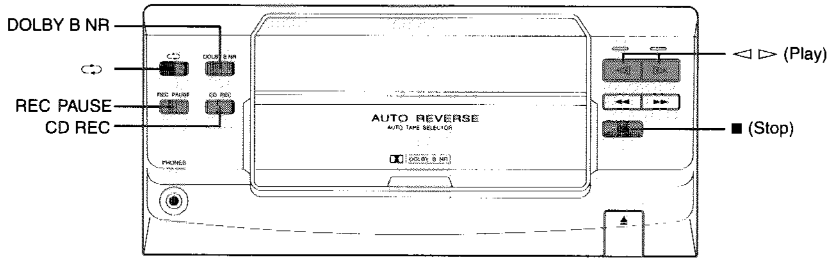
❑ Use the auto reverse mode to make the tape automatically reverse at the end of a side and start playing the other side.
Each time you press the ⊂⊃ button, the auto reverse mode turns on (the indicator lights up) and off (the indicator goes off).



❑ Press the DOLBY B NR button to switch Dolby B NR* on (the indicator lights up) or off (the indicator goes off).
If a tape is recorded with the Dolby B NR system, playing it back with the Dolby B NR on will reduce tape noise and improve the clarity of the sound.

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Using the Cassette Deck (Recording)



IMPORTANT: Before using the Remote Control for the tape operations, **set the Remote Control to the tape operation mode by pressing the TAPE button.**

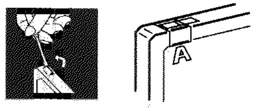
Things to Know Before You Start Recording

❑ **It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic embodied therein.**

❑ Press the DOLBY B NR button — the indicator lights up — to reduce tape hiss.

❑ When you want to record onto both sides of a tape, turn on the auto reverse mode. However, recording automatically stops after recording in the ◁ direction with the auto reverse mode on. Therefore, make sure that the tape direction is ▷ when recording with the auto reverse mode on.

❑ The recording level is automatically set correctly, so it is not affected by the VOLUME control. Thus, during recording you can adjust the sound you are actually listening to without affecting the recording level.



❑ Two small tabs on the cassette tape, one for side A and one for side B, can be removed to prevent accidental erasure or re-recording. To record on a cassette with the tabs removed, you must cover the holes with adhesive tape first. However, when a type II tape is used, only cover part of the hole as shown, since the other part of the hole is used to detect the tape type.

❑ When recording, you can hear Sound Modes through the speakers or headphones. However, the sound is recorded without Sound Modes (see page 9).

❑ Type I and Type II tapes can be used for recording.

Note: The first and end portions of the tape are called leader tape, which cannot be recorded onto. When you start recording, the first part of the recording may not be done because of this leader tape. Before inserting the cassette, first wind the leader tape.

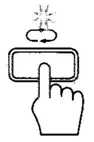
CAUTION: If recordings you have made have excessive noise or static, the unit may be too close to a TV which has been on during recording. Either turn off the TV or increase the distance between the TV and the CA-MD9R.

Standard Recording

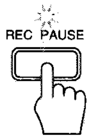
You can record any sound source on the tape.

❑ You can also record the same source on the MD at the same time. (See page 34.)

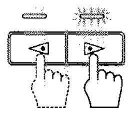
Using the unit only



1. **Insert a blank or erasable tape into cassette holder.**
2. **Press the ⊂⊃ button if you want to record on both sides of the tape.**
   The indicator above the button lights up.
   ❑ When using the auto reverse mode, press the ▷ button then the ■ button to start recording in the forward (▷) direction.
3. **Prepare the source, for example, by tuning in a radio station, loading CDs or MDs, or turning on the external component.**



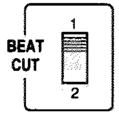
4. **Press the REC PAUSE button.**
   The indicator above the button lights up and the CA-MD9R enters recording pause mode.



5. **Press the ▷ (or ◁) button to record the front side (or the reverse side).**
   ❑ When using the auto reverse mode to record both sides of a tape, press the ▷ button to begin the recording from the front side.

To pause, press the REC PAUSE button. Then press either the ◁ or ▷ button to restart recording.
To stop recording, press the ■ button.
To remove the tape, press down the ≜ button after stopping the play.

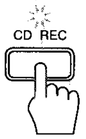
If you are recording an AM (MW/LW) broadcast and you hear interference, move the BEAT CUT switch on the back panel from position 1 (the normal mode) to position 2.



CD Direct Recording

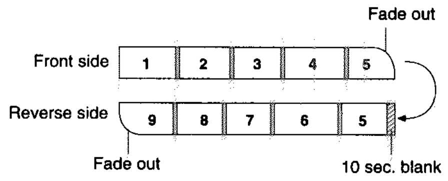
Everything on the CD goes onto the tape in the order it is on the CD, or according to the order you have set in a program. You can even record in Random Play. In this case, the tracks of the 3 CDs are recorded randomly on the tape.

1. **Prepare CDs. (See page 19.)**
   Check that the CD Player is not playing a CD.
2. **Insert a blank or erasable cassette in the cassette holder.**
   ❑ When you want to record on both sides of a tape, press the ⊂⊃ button to turn on the auto reverse mode. In this case, press the ▷ button then the ■ button to start recording in the forward (▷) direction.



3. **Press the CD REC button.**
   "CD → TAPE" appears on the display then the unit plays the CD and starts recording.

At the end of the tape, the CA-MD9R automatically goes back to the beginning of the last selection and re-records it, this time gently fading out at the end. If you have the auto reverse mode, the reverse side starts with the last selection of the front side. The last selection of the reverse side will also fade out at the end. (A 10 second blank is created at the beginning of the reverse side.)
When the recording is finished, the CD Player and Cassette Deck stop.

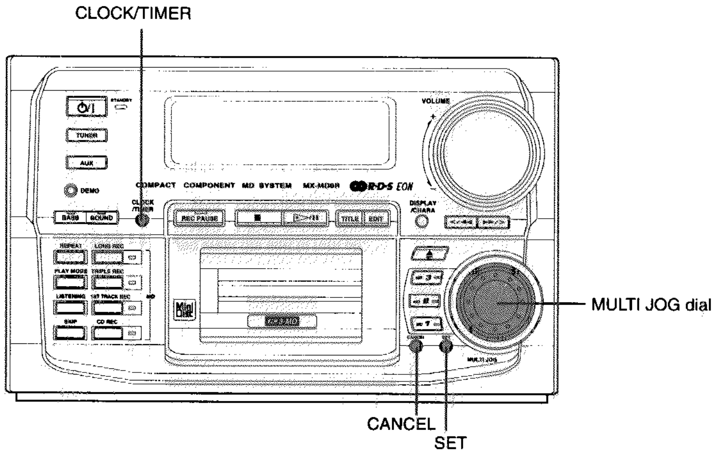


To stop recording, press the ■ button on the Cassette Deck or CD Player (or the ■ button on the Remote Control).

Notes:

- When recording from a CD program (or random play) made from more than one CD, the tape will pause when the unit switches to another CD. Then, when the CD is ready, the unit releases the pause and continue the recording.
- When making Sleep Timer setting while doing CD Direct recording, set the time so that there is enough leeway to finish the recording before the power goes off. If the time is set to about the length of the CD, the power may go off before recording finishes.
- For CD Direct Recording using more than one CD, use a blank tape. If you use a prerecorded tape, prerecorded sound may not be erased between newly-recorded tracks.

Using the Timers



The timers let you control recording and listening functions automatically.
Three types of timers are available:

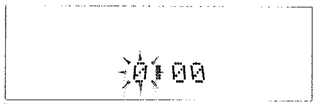
- ❑ **Daily Timer** — Use this timer to set wake up everyday to music from any source.
- ❑ **Recording Timer** — Unattended recording of radio broadcasts. You can set the starting time and length of the recording. You can set up to 3 Recording Timer settings.
- ❑ **Sleep Timer** — Fall asleep and have your CA-MD9R turn off automatically after a certain length of time.

Setting the Clock

The timers depend on the clock: the clock must be right for the timers to work as you expect.
You can set the clock whether the unit is on or off.
Note that the clock must be set, or the timers cannot be set.

CLOCK
/TIMER

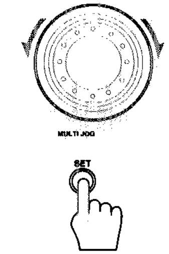
1. Press the CLOCK/TIMER button until the clock indication appears and the hour digits starts flashing on the display.



(Continued to the next page)

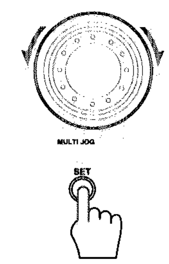
❑ Each time you press the button, the Clock/Timer setting mode changes as follows:

DAILY on/off	Turn on/off the Daily Timer	These will not appear when you set the clock for the first time.
DAILY Timer On Time	Set the Daily Timer	
REC1 on/off	Turn on/off the Recording 1 Timer	
REC1 Timer On Time	Set the Recording 1 Timer	
REC2 on/off	Turn on/off the Recording 2 Timer	
REC2 Timer On Time	Set the Recording 2 Timer	
REC3 on/off	Turn on/off the Recording 3 Timer	
REC3 Timer On Time	Set the Recording 3 Timer	
Clock Setting	Set the clock	
Normal Display (current source)	Display before you press the button	



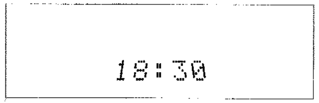
2. Rotate the MULTI JOG dial clockwise or counterclockwise to adjust the hour.
Rotate the MULTI JOG dial clockwise to advance the hour setting, rotate it counterclockwise to decrease the setting.

3. Press the SET button.
The minute digits starts flashing on the display.



4. Rotate the MULTI JOG dial clockwise or counterclockwise to adjust the minute.
Rotate the MULTI JOG dial clockwise to advance the minute setting, rotate it counterclockwise to decrease the setting.

5. Press the SET button.
The clock starts at zero seconds from the set time.



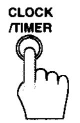
Note:
If you press any other button than the specified ones while setting the clock, the procedure will be canceled and you will have to restart from the beginning.

CAUTION: If there is a power failure, the clock loses its setting. The clock becomes "0:00", and the clock must be reset.

Setting the Daily Timer

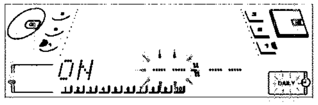
With this timer you can wake up to music from a CD, a MD, a tape, your favorite radio program, or the external source.

- ☐ You can set the Daily Timer whether the unit is on or off.
- ☐ If the clock has not been set, you cannot select the Daily Timer.



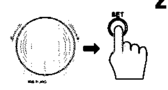
Procedure for Setting the Daily Timer

1. Press the CLOCK/TIMER button repeatedly until the Daily Timer On-Time setting mode is selected.
The DAILY indicator starts flashing on the display.

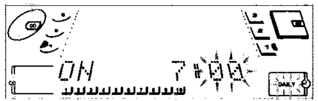


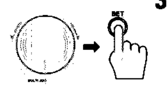
☐ Each time you press the button, the Clock/Timer setting mode changes as follows:

DAILY on/off	Turn on/off the Daily Timer
DAILY Timer On Time	Set the Daily Timer
REC1 on/off	Turn on/off the Recording 1 Timer
REC1 Timer On Time	Set the Recording 1 Timer
REC2 on/off	Turn on/off the Recording 2 Timer
REC2 Timer On Time	Set the Recording 2 Timer
REC3 on/off	Turn on/off the Recording 3 Timer
REC3 Timer On Time	Set the Recording 3 Timer
Clock Setting	Set the clock
Normal Display (current source)	Display before you press the button

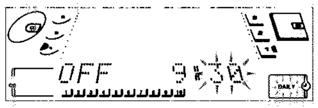


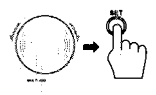
2. Set the time you want the unit to turn on.
1. Rotate the MULTI JOG dial to select the hour, then press the SET button.
2. Rotate the MULTI JOG dial to select the minute, then press the SET button.



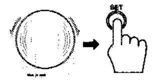


3. Set the time you want the unit to turn off.
1. Rotate the MULTI JOG dial to select the hour, then press the SET button.
2. Rotate the MULTI JOG dial to select the minute, then press the SET button.

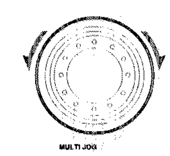




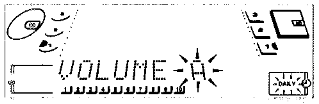
4. Select the source you want to listen to.
1. Rotate the MULTI JOG dial clockwise or counterclockwise until the source you want appears on the display.
   The selected source changes as follow:
   → FM → AM → CD → TAPE → MD → AUX →
2. Press the SET button to enter the source.



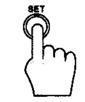
5. If you have selected CD or MD as the source in step 4, select a disc to play.
1. Rotate the MULTI JOG dial clockwise or counterclockwise to select a disc.
2. Press the SET button.



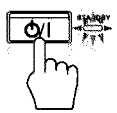
6. Set the Volume Level.
Rotate the MULTI JOG dial clockwise or counterclockwise to set the volume level.



Display	Volume Level
VOLUME --	Current volume level
VOLUME A	VOLUME 5
VOLUME B	VOLUME 12
VOLUME C	VOLUME 20



7. Press the SET button.
The DAILY indicator stops flashing and remains lit. The contents of the timer setting will be shown on the display for a while.



8. Turn the power off if you set the timer with the power turned on.

☐ A few seconds before the on-time, the CA-MD9R automatically turns on the power, and "DAILY TIMER" starts flashing on the display. When the on-time comes, playback starts using the selected source. When the off-time comes, the power is automatically turned off.

Before Turning Off the unit

❑ If you have selected "FM" or "AM" as the source, make sure that the station you want is selected.
If not, select the station you want.

❑ If you have selected "CD" or "MD," make sure that you have prepared a CD or an MD.

❑ If you have selected "TAPE" as the source:
- Make sure that there is a tape in the cassette holder.
- Check that the tape direction is correct. This is important especially when the auto reverse mode is off.
- Set the auto reverse mode on if you want to play both sides of the tape.

❑ Select the Sound Mode if you want to listen using a Sound Mode.

To change the Daily Timer setting

To change the settings for the Daily Timer, repeat the setting procedure from the beginning.

Turning the Daily Timer On and Off

Once the Daily Timer has been set it will be activated at the same time every day until the setting is turned off.

To turn the Daily Timer off, press the CLOCK/TIMER button repeatedly until "DAILY on/off" appears on the display. Press the CANCEL button, "on" disappears from the display and the DAILY indicator goes off.

To turn the Daily Timer on again, press the CLOCK/TIMER button until "DAILY on/off" appears on the display, then press the SET button. The contents of the Daily Timer setting are shown on the display.

CAUTION: If the CA-MD9R is unplugged, or a power failure occurs, the timer setting will be erased in a few days. If the settings are erased, reset the timer settings.

Setting the Recording Timer

With the Recording Timer you can record a radio broadcast automatically whether or not you are home.

❑ You can set the Recording Timer whether the unit is on or off.

❑ You can set three different Recording Timer settings (REC 1 to 3).

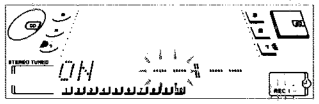
❑ If the clock has not been set, you cannot select the Recording Timer.

Procedure for Setting the Recording Timer

CLOCK
/TIMER

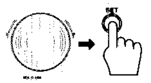
1. Press the CLOCK/TIMER button repeatedly until Recording timer on-time setting mode appears on the display.

The REC 1, 2 or 3 indicator also lights up on the display.

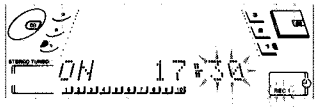


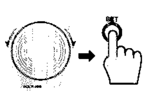
❑ Each time you press the button, the Clock/Timer setting mode changes as follows:

DAILY on/off	Turn on/off the Daily Timer
DAILY Timer On Time	Set the Daily Timer
REC1 on/off	Turn on/off the Recording 1 Timer
REC1 Timer On Time	Set the Recording 1 Timer
REC2 on/off	Turn on/off the Recording 2 Timer
REC2 Timer On Time	Set the Recording 2 Timer
REC3 on/off	Turn on/off the Recording 3 Timer
REC3 Timer On Time	Set the Recording 3 Timer
Clock Setting	Set the clock
Normal Display (current source)	Display before you press the button

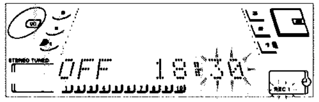


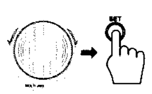
2. Set the time you want the unit to be turned on.
1. Rotate the MULTI JOG dial to select the hour, then press the SET button.
2. Rotate the MULTI JOG dial to select the minute, then press the SET button.





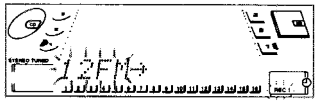
3. Set the time you want the unit to be turned off.
1. Rotate the MULTI JOG dial to select the hour, then press the SET button.
2. Rotate the MULTI JOG dial to select the minute, then press the SET button.

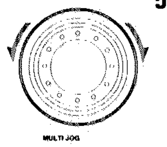




4. Select a preset station you want to record.

1. Rotate the MULTI JOG dial to select a preset station.
2. Press the SET button to enter the preset station.





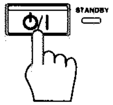
5. Select the recording equipment.

The recording equipment changes as follows:

TAPE : To record on the tape.
MD 1 : To record on the MD 1.
MD 2 : To record on the MD 2.
MD 3 : To record on the MD 3.
MD ALL : To record on all the three MDs.

6. Press the SET button.

The REC (1 to 3) indicator stops flashing and remains lit. The contents of the Recording Timer setting are shown on the display fro a while.



7. Press ⏻/I to turn the power off if necessary.

❑ A few seconds before the on-time, the CA-MD9R automatically turns on the power, and "REC (1 to 3) TIMER" flashes on the display. When the on-times comes, recording starts using the selected recording equipment. When the off-times comes, the power is automatically turned off again.

Before Turning Off the unit

- ❑ Check that tape direction is correct when recording on a tape. This is important especially when the auto reverse mode is off.
- ❑ Set the auto reverse mode on if you want to record on both sides of the tape.
- ❑ Check that an MD is inserted in the selected slot(s).
- ❑ The VOLUME control is automatically set to 0 when Recording Timer starts recording.

To change the recording timer setting

To change the settings for the Recording Timer, repeat the setting procedure from the beginning.

Turning the Recording Timer On and Off

Once the Recording Timer has been used to record a source, the setting is maintained but the Timer is turned off.

To turn the Recording Timer off, press the CLOCK/TIMER button repeatedly until "REC on/off" appears in the display, then press the CANCEL button. "on" disappears from the display and the REC indicator goes off.

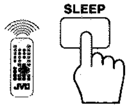
To turn the Recording Timer on again, press the CLOCK/TIMER button repeatedly until "REC on/off" appears on the display, then press the SET button. The contents of the Recording Timer settings are shown on the display for a while.

CAUTION: If the CA-MD9R is unplugged, or a power failure occurs, the timer setting will be erased in a few days. If the settings are erased in this way, reset the timer settings.

Setting the Sleep Timer

By setting this timer, you can fall asleep to music.

❑ You can only set the Sleep Timer when the unit is on.



Procedure for Setting the Sleep Timer

1. While playing a source, press the SLEEP button on the Remote Control.

"SLEEP" appears on the display.

2. Press the SLEEP button repeatedly to set the length of time you want the source to play before shutting off.

❑ Each time you press this button while the "SLEEP" indicator is flashing, the number of minutes shown on the display change as follows:

→ 10 → 20 → 30 → 60 → 90
Canceled ← 240 ← 180 ← 120 ←

When the number of minutes you want is shown on the display, wait 5 seconds until the SLEEP indicator stops flashing and remains lit.

The unit is now set to turn off after the number of minutes you set.

To change the Sleep Timer setting

Press the SLEEP button repeatedly until the number of minutes you want appears on the display.

To cancel the Sleep Timer setting

Press the SLEEP button repeatedly until the SLEEP indicator goes off on the display.

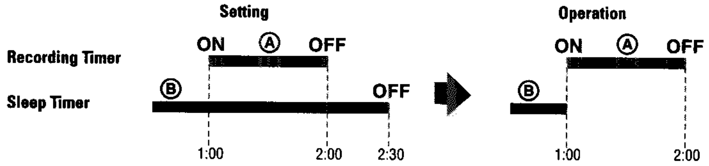
Turning off the unit also cancels the Sleep Timer.

Timer Priority

Since each timer can be set independently, you may wonder what happens if the settings overlap.
Here are the priorities for each timer:

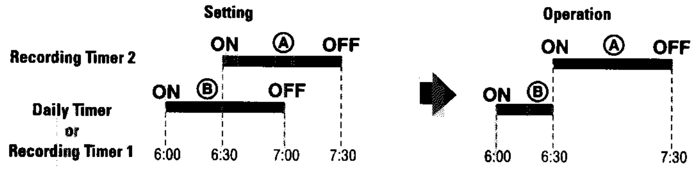
- ☐ If the Recording Timer is set to come on while another timer is operating, the other timer will shut off 10 seconds before the Recording Timer is set to turn on, and the Recording Timer will then take over. (Example 1)
- ☐ If two Recording Timers overlaps, the one with a late on-time has the priority. (Example 2)
- ☐ The Sleep Timer has the priority over the Daily Timer. This means that if the Sleep Timer is set while the Daily Timer is operating, the Sleep Timer will take over. (Example 3)
- ☐ If you set the Sleep Timer while the Recording Timer is operating, the Recording Timer will be canceled, but recording continues.

Example 1


Setting
Operation
Recording Timer
Sleep Timer
ON Ⓐ OFF
Ⓑ
OFF
1:00
2:00
2:30
ON Ⓐ OFF
Ⓑ
1:00
2:00

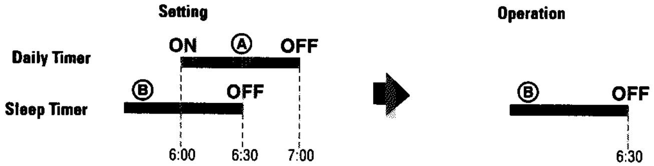
The Recording Timer has priority.
The sound is cut off a few seconds before the Recording Timer on-time.

Example 2


Setting
Operation
Recording Timer 2
Daily Timer
or
Recording Timer 1
ON Ⓐ OFF
ON Ⓑ OFF
6:00
6:30
7:00
7:30
ON Ⓐ OFF
ON Ⓑ
6:00
6:30
7:30

The Recording Timer 2 has priority.
The sound is cut off a few seconds before the Recording Timer on-time.

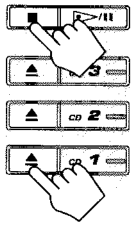
Example 3


Setting
Operation
Daily Timer
Sleep Timer
ON Ⓐ OFF
Ⓑ OFF
6:00
6:30
7:00
Ⓑ OFF
6:30

The Sleep Timer has priority.

Disc Lock Function

When the Disc Lock function is on, the CD trays and MD loading slot cover cannot be opened even if you press the ▲ button.
This function can only be possible by using the buttons on the unit.



Locking the Discs

1. **Press the ⏻/I button to turn off the unit (in standby mode).**
2. **While pressing the ■ button, press the ▲ button for CD1 tray.**
   "LOCKED" appears on the display, and discs are "locked."

If you press the ▲ buttons while the discs are "locked," "LOCKED" will appear on the display.

Unlocking the Discs

1. **Press the ⏻/I button to turn off the unit (in standby mode).**
2. **While pressing the ■ button, press the ▲ button for CD1 tray.**
   "UNLOCKED" appears on the display, and discs are "unlocked."

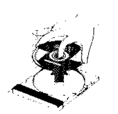
Care and Maintenance

General Notes

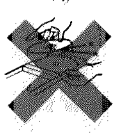
In general, you will have the best performance by keeping your tapes, CDs, MDs and the mechanism clean.

- Store tapes, CDs and MDs in their cases, and keep them in cabinets or on shelves.
- Keep the cassette holder, the CD trays, and the MD loading slot cover closed when not in use.

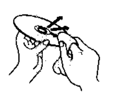
Compact Discs



- Remove the CD from the case by holding it at the edges while pressing the center hole lightly.
- Do not touch the shiny surface of the CD, or bend the CD.



- Be careful not to scratch the surface of the CD when placing it back in the case.
- Avoid exposure to direct sunlight, temperature extremes, and moisture.



- A dirty CD may not play correctly. If a CD does become dirty, wipe it with a soft cloth in a straight line, from center to edge.

CAUTION: Do not use any solvent (for example, conventional record cleaner, spray thinner, benzine, etc.) to clean a CD.

Mini Discs

- Do not open the shutter.
  - The shutter is locked so that it will not open. Trying to force it open will break the disc. If the shutter opens accidentally, close it again quickly without touching the disc inside.
- Do not place discs in the following places:
  - High temperatures areas such in direct sunlight or inside a car.
  - High humidity areas, e.g. in a bathroom.
  - On a beach or sandy area.
- Clean discs regularly.
  - If dust or dirt gets on cartridge, wipe it off with a soft dry cloth.

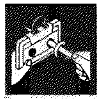
Moisture Condensation

Moisture may condense on the lens inside the unit in the following cases:

- After starting the heating in the room.
- In a damp room.
- If the unit is brought directly from a cold to a warm place.

Should this occur, the unit may malfunction. In this case, leave the unit turned on for a few hours until the moisture evaporates, unplug the AC power cord, and then plug it in again.

Cassette Tapes



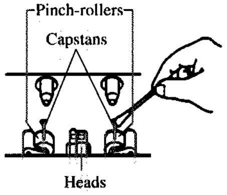
- If the tape is loose in its cassette, take up the slack by inserting a pencil in one of the reels and rotating.
- If the tape is loose, it may get stretched, cut, or caught in the cassette.

- Do not touch the tape surface.

- Do not store the tape:
  - In dusty places
  - In direct sunlight or heat
  - In moist areas
  - On a TV or speaker
  - Near a magnet

Cassette Deck

- If the heads, capstans, and pinch-rollers of the Cassette Deck become dirty, the following will occur:
  - Loss of sound quality
  - Discontinuous sound
  - Fading
  - Incomplete erasure
  - Difficulty recording
- Clean the heads, capstans, and pinch-rollers using a cotton swab moistened with alcohol.



- If the heads become magnetized, the unit will produce noise or lose high frequencies.
- To demagnetize the heads, turn off the unit, and use a head demagnetizer (available at electronics and record shops).

Troubleshooting

- If you are having a problem with your CA-MD9R, check this list for a possible solution before calling for service.
- If you cannot solve the problem from the hints given here, or the unit has been physically damaged, call a qualified person, such as your dealer, for service.

Symptom	Possible Cause	Action
No sound is heard.	Connections are incorrect, or loose.	Check all connections and make corrections. (See pages 4 – 5.)
Unable to record on an MD.	• You are using a prerecorded MD. • The MD is write-protected.	• Change it with a recordable MD. • Unprotect the MD. (See page 69.)
Unable to record.	Cassette record protect tabs are removed.	Cover holes on back edge of cassette with adhesive tape.
Poor radio reception.	• The antenna is not connected correctly. • The AM loop antenna is too close to the unit. • The FM antenna is not properly extended and positioned.	• Reconnect the antenna securely. • Change the position and direction of the AM loop antenna. • Extend FM antenna to the best reception position.
The CD skips.	The CD is dirty or scratched.	Clean or replace the CD.
Unable to operate the Remote Control.	• The path between the Remote Control and the sensor on the unit is blocked. • The batteries have lost their charge.	• Remove the obstruction. • Replace the batteries.
The CD trays or MD loading slot cover cannot be opened.	• The main AC power cord is not plugged in. • The Disc Lock function is turned on.	• Plug in the AC power plug. • Turn off the Disc Lock function. (See page 66.)
The CD does not play.	The CD is upside down.	Put the CD in with the label side up.
Operations are disabled.	The built-in microprocessor has malfunctioned due to external electrical interference.	Unplug the unit then plug it back in.
The cassette holder cannot be opened.	During tape playing, the power cord was unplugged.	Plug in the power cord, press the ⏻/I button, then the ⏏ button.

MD Error Messages

Error Message	Signification	Solution
BLANK DISC	The disc is blank.	Change the disc with another if you want to enjoy playback.
CANNOT JOIN	You are trying to join tracks which cannot be joined.	This is not a malfunction. (See MD limitations.)
DISC ERROR	There is a problem with this disc.	Change the disc.
DISC FULL	There is no more space on the disc or there are over 254 tracks.	Use another recordable MD or erase some tracks.
EMERGENCY STOP	A malfunction occurs during the recording.	Eject the MD and re-insert it.
MD NO DISC	There is no disc.	Put an MD.
NON-AUDIO CANNOT COPY	You are trying to copy a non-audio disc like a CD-ROM or a Video CD.	Stop the recording.
PLAYBACK MD	You are trying to edit or record a playback-only MD	Use a recordable MD for recording.
DISC PROTECTED	The disc is write-protected.	Unprotect the disc or use another.
TRACK PROTECTED	The track is protected using another MD recorder.	Press the SET button, then the EDIT button to cancel the track protection.
OCCUPIED	During playback, you inserted an MD into the loading slot where another MD has been inserted.	Remove the MD.
LOAD ERROR	The MD is not inserted correctly.	Insert the MD correctly then press the ≜ button for the MD Recorder.

MD limitations

The MD records data in an original format that differs from that of conventional cassette tapes or DATs. Since there are some limitations with this recording format, the following types of symptoms may occur. These symptoms are not malfunctions.

Symptoms	Cause
"DISC FULL" appears, even though there is still enough remaining time on an MD.	There is a maximum number of tracks which can be recorded, regardless of time. More than 254 tracks cannot be recorded on a disc.
"DISC FULL" appears even though the number of tracks and recording time do not reach the limit.	• Repeating erasure and recording on the same disc create many blank portions sparsely on the disc. When recording on such a disc, a track is recorded on these blank portions sparsely. If a track is divided and recorded into so many portions, "DISC FULL" appears. • If a divided portion of less than 8 seconds is made while a track is recorded on the MD, that track cannot be joined to another track using the JOIN function. Furthermore, if that track is erased, the remaining time of the MD may not increase exactly by the erased amount. • If a track has been divided into many portions while being recorded on the MD, sounds will drop out while fast forwarding or reversing such an MD.
The JOIN function sometimes does not work.	
The remaining time on the disc does not increase even when tracks are erased.	
The sound drops out during fast forward or fast rewind.	
The amount of recorded time on the disc added to the amount of remaining time is shorter than the disc's total possible recording time.	You cannot record on a blank portion of less than 2 seconds in the MD. For this reason, the actual recording time of discs may become shorter.

Specifications

Amplifier Section

Output Power (IEC 268-3/DIN)	37 watts per channel, min. RMS, both channels driven, into 6 ohms at 1 kHz with no more than 0.9% total harmonic distortion.
Input Sensitivity/Impedance (1 kHz) AUX	400 mV/47 kohms
Speaker terminals Main speakers	6 – 16 ohms

Tuner Section

FM Tuner Tuning Range	87.5 – 108.0 MHz
AM Tuner Tuning Range MW	522 – 1,629 kHz
LW	144 – 288 kHz

Timer Section

Rec Timer	1 min. to 23 hours 59 min.
Daily Timer	1 min. to 23 hours 59 min.
Sleep Timer	10 min. to 240 min.
Clock Display	24 hours cycle display

Cassette Deck Section

Frequency Response Type II (CrO_2) :	30 – 16,000 Hz
Type I (NORMAL) :	30 – 15,000 Hz
Wow And Flutter	0.15% (WRMS)

CD Automatic Changer Section

CD Capacity	3 CDs
Dynamic Range	94 dB
Signal-To-Noise Ratio	100 dB
Wow And Flutter	Unmeasurable

MD Automatic Changer Section

Audio Playing System	MiniDisc digital audio system
Recording System	Magneto-optical overwrite system
Reading System	Non-contact, semiconductor laser pick-up (λ = 780nm)
Error correction System	CIRC (Cross Interleave Reed-Solomon Code)
Sampling frequency	44.1 kHz
Audio compression System	ATRAC (Adaptive TRansform Acoustic Coding)
Number of channels	2
Wow And Flutter	Unmeasurable

General

Dimensions	245 x 345 x 346.5 mm (W/H/D) (9-11/16 x 13-5/8 x 13-5/8 inches)
Mass	9.5 kg (20.9 lbs)

Accessories

AM (MW/LW) Loop Antenna (1)
Remote Control (1)
Batteries R6P (SUM-3)/AA (15F) (2)
FM Wire Antenna (1)

Power Specifications

Power Requirements	AC 230 V∿, 50 Hz
Power Consumption	110 watts 15 watts (in standby mode)

Design and specifications are subject to change without notice.

Additional Informations

Some Words about MDs

There are two types of MDs: premastered (prerecorded) and recordable (blank).

Premastered MDs
Premastered MDs, which have been recorded at music studio, can be played back like regular CDs. On an MD of this type, data is recorded as the presence or absence of tiny pits. A laser beam focuses on the pits on the surface of the MD and reflects the detection back to the lens in the MD Recorder. The MD Recorder then decodes the signals and plays them back as music. This type of MD is called an "optical disc."

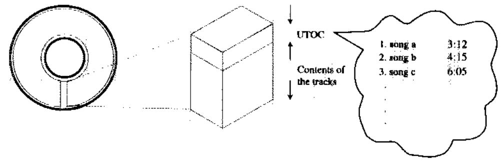
Recordable MDs
Recordable MDs, which use magneto-optical technology, can be recorded and played back repeatedly. The laser inside the MD Recorder applies heat to the MD, demagnetizing the magnetic layer of the MD for recording and playback. This type of MD is called an "magnetic-optical disc."

ATRAC (Adaptive TRansform Acoustic Coding)

The MD provides 74 minutes recording and playback time, the same as an audio CD, but in a diameter of only 64 mm. This ability to store such a large amount of data is the result of ATRAC, an audio compression technique developed for MD. This technology, cuts out faint sounds that would not be heard by the human beings. This technology, based on human sensitivity to sounds, enabled the recorded data to be about one-fifth of the original data.

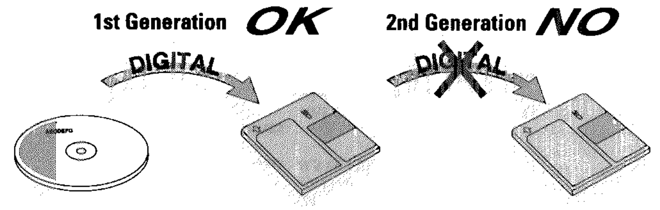
UTOC (User Table Of Contents)

Found only on recordable MDs, this area contains sub-data (track number, recording data etc.) which can be rewritten by the user.
UTOC enables us to search tracks quickly and edit tracks on the MD.



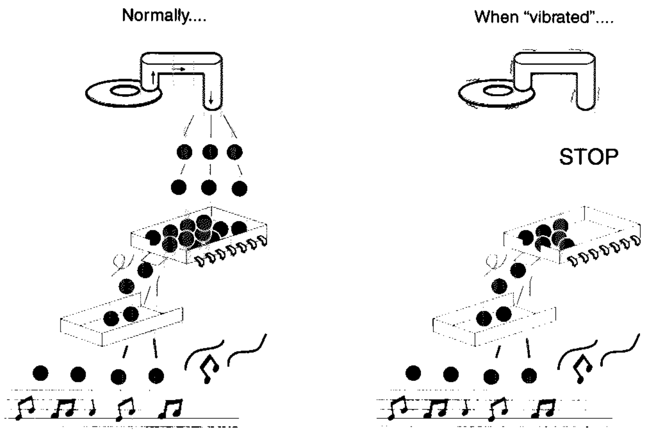
Serial Copy Management System (SCMS)

The MD Recorder integrated to this unit uses the Serial Copy Management System which allows only first-generation digital copies to be made of premastered software (like CDs or prerecorded MDs).



Sound Skip Guard Memory

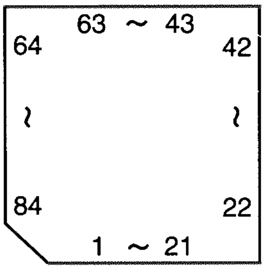
The biggest weakness of discs is their susceptibility to vibration. The "Sound Skip Guard Memory" has been developed to cope with this weakness.
With this function, a few seconds of signals read by the optical read head from the disc are first stored in memory before being reproduced as audio signals. Thus, even when vibration or shock interrupts signals being read, these stored signals can continue to reproduce sounds for the few seconds. Thus, the user will enjoy uninterrupted music.



Description of Major ICs

■MN173222JABL(IC901):Tuner,Display&System control

1.Terminal Layout

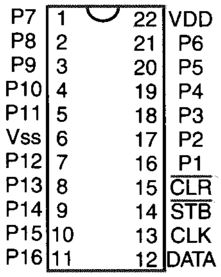


2.Pin Function

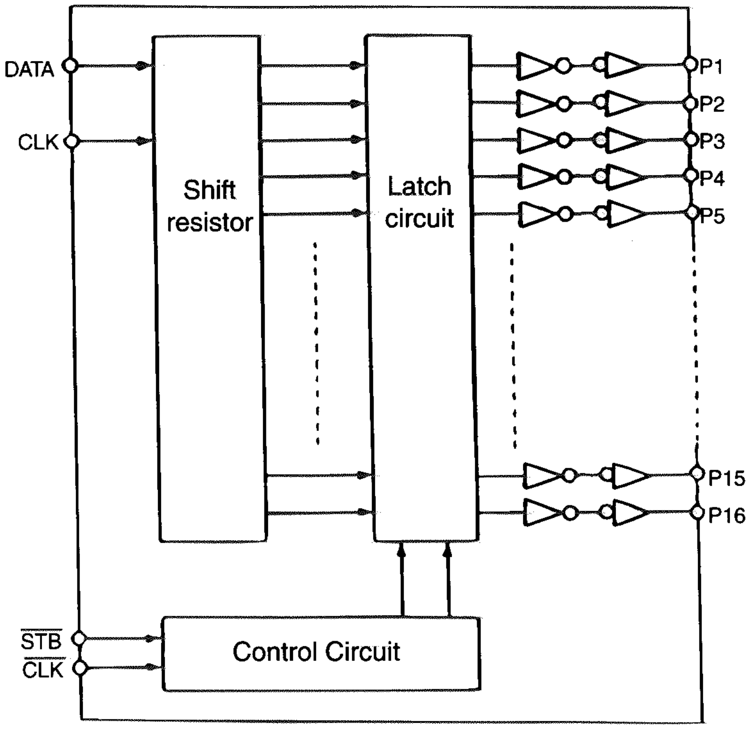
PIN NO.	Symbol	I/O	Function	PIN NO.	Symbol	I/O	Function
1~17	S19~S35	O	FL segnemt control output.	59	TCE	O	Chip enable output to IC121.
18	SPR.R	O	Speaker relay control.	60	SDI	I	Serial data input from IC704.
19	S.MUTE	O	Source mute output.	61	CLK	O	Clock signal output to IC704.902.906
20	17G	O	FL grid control output.	62	DATA	O	Serial data output to IC704.902.906.
21	D.RESET	O	Reset signal output to IC903.	63	CD/MD	O	CD/MD
22	D.CLK	O	Clock signal output to IC903.	64	MDRDY	O	Ready signal to IC500.
23	-VPP	-	Power supply.	65	MDCLK	O	Clock signal to IC500.
24~39	S1~S16	O	FL segment control output.	66	MDSTAT	I	Status signal to IC500.
40	CDRDY	O	Ready signal to IC751.	67	MDCMD	O	Command data to IC500.
41	CDCLK	O	Clock signal to IC751.	68	RESET	I	Reset signal input.
42	CDSTAT	I	Status signal from IC751.	69	X1	I	Connect to GND.
43	CDCMD	O	Command data signal to IC751.	70	X2	-	Non connect.
44	CE	O	Chip enable for IC704.	71	VSS	-	Connect to GND.
45	RDSCLK	I	Clock signal from IC261.	72	OSC2	O	Oscillation terminal (6MHz).
46	RDSDATA	I	Serial data from IC261.	73	OSC1	I	Oscillation terminal (6MHz).
47	T.MUTE	O	Tuner mute output.	74	VDD	-	Power supply.
48	RMIN	I	Remocon signal input.	75	INHIN	I	Inhibit signal input.
49	RDSDST	I	Data start signal for block data to output serial data.	76	POWER	O	Power control.
				77	JOG2B	I	Jog pulse input 2B.
50	JOG1A	I	Jog pulse input 1A.	78	JOG2A	I	Jog pulse input 2A.
51	JOG1B	I	Jog pulse input 1B.	79	KI3	I	Key matrix input.
52	STB1	O	Strobe output 1.	80	KI2	I	Key matrix input.
53	STB2	O	Strobe output 2.	81	KI1	I	Key matrix input.
54	SCL	O	Serial clock output.	82	KI0	I	Key matrix input.
55	SDA	O	Serial data output.	83	S17	O	FL segment control output.
56	IFDATA	I	IF Data input from IC121.	84	S18	O	FL segment control output.
57	TCLK	O	Clock signal output to IC121.				
58	TDATA	O	Data signal output to IC121.				

■ NJU3715G-W(IC902,IC906):L.E.D.Driver

1.Terminal Layout


P7 1
P8 2
P9 3
P10 4
P11 5
Vss 6
P12 7
P13 8
P14 9
P15 10
P16 11
22 VDD
21 P6
20 P5
19 P4
18 P3
17 P2
16 P1
15 $\overline{\text{CLR}}$
14 $\overline{\text{STB}}$
13 CLK
12 DATA

2.Block Diagram

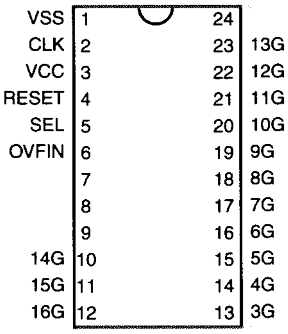

DATA
CLK
Shift resistor
Latch circuit
P1
P2
P3
P4
P5
P15
P16
$\overline{\text{STB}}$
$\overline{\text{CLK}}$
Control Circuit

3.Pin Function

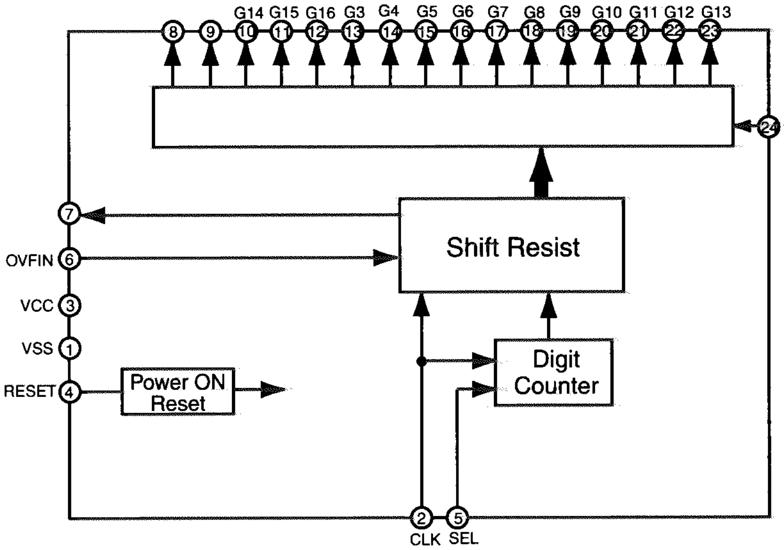
PIN No.	I/O	Symbol	Function
1~5	O	P7~P11	Parallel conversion data output terminal.
6	-	Vss	Connect to GND.
7~11	O	P12~P16	Parallel conversion data output terminal.
12	I	DATA	Serial data input terminal.
13	I	CLK	Clock signal input terminal.
14	I	$\overline{\text{STB}}$	Strobe signal input terminal.
15	I	$\overline{\text{CLR}}$	Clear signal input terminal.
16~21	O	P1~P6	Parallel conversion data output terminal
22	-	VDD	Power supply.

■ M35501FP(IC903):FL Controller

1.Terminal Layout


VSS 1
CLK 2
VCC 3
RESET 4
SEL 5
OVFIN 6
7
8
9
14G 10
15G 11
16G 12
24
23 13G
22 12G
21 11G
20 10G
19 9G
18 8G
17 7G
16 6G
15 5G
14 4G
13 3G

2.Block Diagram

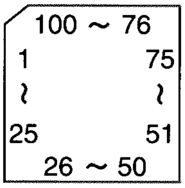

G14 G15 G16 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12 G13
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24
7
OVFIN 6
VCC 3
VSS 1
RESET 4
Power ON Reset
Shift Resist
Digit Counter
2 5
CLK SEL

3.Pin Function

PIN No.	Symbol	I/O	Function
1	VSS	-	Connect to GND.
2	CLK	I	Clock signal input from IC901.
3	VCC	-	Power supply.
4	RESET	I	Reset signal input from IC901.
5	SEL	I	Select signal input from IC901
6	OVFIN	I	Over flow signal input.
7		-	Non connect.
8,9			Power supply to FL Display
10~23	G16~G3	O	FL grid control output.
24		-	Power supply.

■ HD6433048SV35F(IC500) : MD Control Micon

1.Terminal Layout



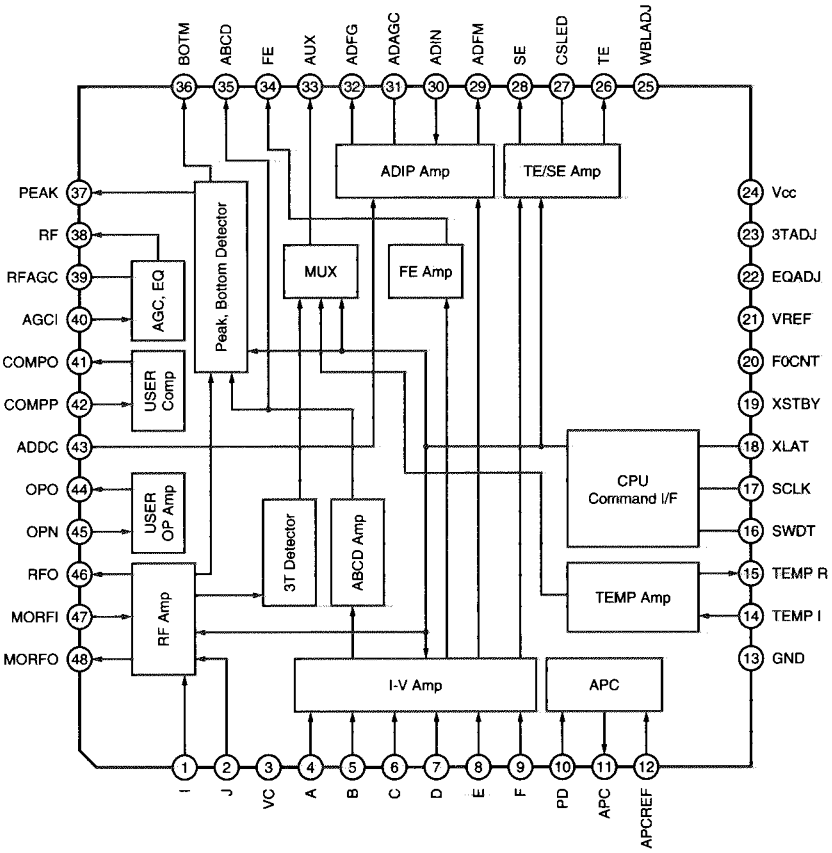
2.Pin Function

PIN No.	Symbol	I/O	Function
1	VCC	-	Power supply.
2	NC	-	Non connect.
3	$\overline{\text{MODON}}$	O	L:Harmonic weight ON, at playback.
4	MODCHG	O	L:PLAY H:REC (Harmonic weight power).
5	TX	O	Data output enable signal when recording.
6	RECP	O	Connect to RECP terminal for IC350.
7	XTSL	O	Connect to XTSL terminal for IC350.
8	XRST	O	Connect to XRDT terminal for IC350.
9	XLAT	O	Connect to XLAT terminal for IC350.
10	RESO	-	When the flash memory is written it is the voltage supply of +12V terminal.
11	GND	-	Connect to GND.
12	STATUS	O	Status signal output to IC901.
13	SWDT	O	Serial bus light output terminal to IC350.
14	COMMAND	I	command data input from IC901.
15	SRDT	I	Serial bus lead input terminal to IC350.
16	COMCLK	O	Clock signal to IC901.
17	SCLK	I	Serial bus clock output terminal to IC350.
18	STSRDY	O	Ready signal from IC901.
19	MEMUTE	O	Pick up drive mute terminal.
20	MHON	O	Magnetic head drive control terminal L:At recording.
21	P.ON	O	Power ON/OFF control terminal H:Power ON.
22	GND	-	Connect to GND.
23	PWAD	O	A/D converter ON/OFF control terminal for audio, L:Power down.
24	PWDA	O	D/A converter ON/OFF control terminal for audio, L:Power down.
25	EMPHE	O	Playback signal emphasis ON/OFF signal L:ON.
26	NC	-	Non connect.
27	MDN	O	Elevator down / Cartridge load.
28	MUP	O	Elevator up / Cartridge eject.
29	LOAD	O	Stocker load.
30	EJECT	O	Stocker open.
31~34		O	Connect to TP525~TP528.
35	VCC	-	Power supply.
36	SSTOP	I	Limit switch ON/OFF detect signal terminal for surroundings detection the in disc.
37	MREF	I	Disc hole detect switch (Reflectivity detection input).
38	MPROT	I	Disc hole detect switch (Recording protection detection input).
39	C.PLAY	I	Cartridge loading position detection.
40	UNLOAD	I	Cartridge eject position detection.
41	S.CLOSE	I	Stocker standby position detection.

PIN No.	Symbol	I/O	Function
42	S.LOAD	I	Stocker loading position detection.
43	S.OPEN	I	Sticker open position detection.
44	GND	-	Connect to GND.
45	ELE1	I	Elevator position detection 1.
46	ELE2	I	Elevator position detection 2.
47	DISC1	I	Disc 1 extence detection.
48	DISC2	I	Disc 2 extence detection.
49	DISC3	I	Disc 3 extence detection.
50		-	Non connect.
51	FEED	O	FEED signal output.
52		O	Connect to TP535.
53	SEL0	I	ID when controlling simultaneously (pull up MOS) At normal use:H.
54	SEL1	I	ID when controlling simultaneously (pull up MOS) At normal use:H.
55	SEL2	I	ID when controlling simultaneously (pull up MOS) At normal use:H.
56	SEL3	I	ID when controlling simultaneously (pull up MOS) At normal use:H.
57	GND	-	Connect to GND.
58	MMONI0	O	Parallel operation monitor terminal.
59	MMONI1	O	Parallel operation monitor terminal.
60	MMONI2	O	Parallel operation monitor terminal.
61	0	O	Parallel operation monitor terminal.
62	STBY	-	Connect to VCC.
63	RESET	I	Reset signal input terminal.
64	NMI	I	Connect to VCC.
65	GND	-	Connect to GND.
66	EXTAL	-	Oscillation terminal (8MHz).
67	XTAL	-	Oscillation terminal (8MHz).
68	VCC	-	Power supply.
69	MMONI3	O	Parallel operation monitor terminal.
70	SCL	O	EEPROM Serial clock output to IC590,IC591.
71	DI	O	EEPROM Data output to IC590,IC591.
72	CS	O	EEPROM Chip select terminal output to IC590,IC591.
73	MD0	-	Connect to VCC.
74	MD1	-	Connect to VCC.
75	MD2	-	Connect to VCC.
76	AVCC	-	Connect to VCC.
77	Vref	-	Connect to VCC.
78	MODESE	I	Operation mode select terminal for Micon H:Time usually.
79	SET1	I	External communication method selection terminal, H:UART L:four line type.
80	SET2	I	DOUT selection terminal, H:DIN output L:FS convert output.
81	SET3	I	Digital output selection terminal H:OFF L:ON.
82	MT0	I	Monitor output selection terminal of IC350.
83	MT1	I	Monitor output selection terminal of IC350.
84	MT2	I	Monitor output selection terminal of IC350.
85	MT3	I	Monitor output selection terminal of IC350.
86	GND	-	Connect to GND.
87	XINT	I	Interruption status input terminal of IC350.
88	DQSY	I	Digital in of U-bit, Sub code Q sink input terminal.
89	SQSY	I	Sub code Qsink input terminal.
90	NC	-	Non connect.
91	CS1	O	EEPROM Chip select.
92	GND	-	Connect to GND.
93	MNT0	I	Connect to MNT0 terminal of IC350.
94	MNT1	I	Connect to MNT1 terminal of IC350.
95	MNT2	I	Connect to MNT2 terminal of IC350.
96	MNT3	I	Connect to MNT3 terminal of IC350.
97	SENS	I	Status signal input terminal from IC350.
98	DO	I	EEPROM Serial data input terminal from IC590,IC591.
99	X.SEL	I	Crystal oscillation frequency selection terminal, L:22.5792MHz H:45.1584MHz.
100	VCC	-	Power supply.

■ CXA2523AR(IC310):MD Servo

1.Block Diagram


BOTM
ABCD
FE
AUX
ADFG
ADAGC
ADIN
ADFM
SE
CSLED
TE
WBLADJ
ADIP Amp
TE/SE Amp
PEAK
RF
RFAGC
AGCI
COMPO
COMPP
ADDC
OPO
OPN
RFO
MORFI
MORFO
AGC, EQ
Peak, Bottom Detector
MUX
FE Amp
USER Comp
USER OP Amp
3T Detector
ABCD Amp
RF Amp
CPU Command I/F
TEMP Amp
I-V Amp
APC
Vcc
3TADJ
EQADJ
VREF
F0CNT
XSTBY
XLAT
SCLK
SWDT
TEMP R
TEMP I
GND
I
J
VC
A
B
C
D
E
F
PD
APC
APCREF

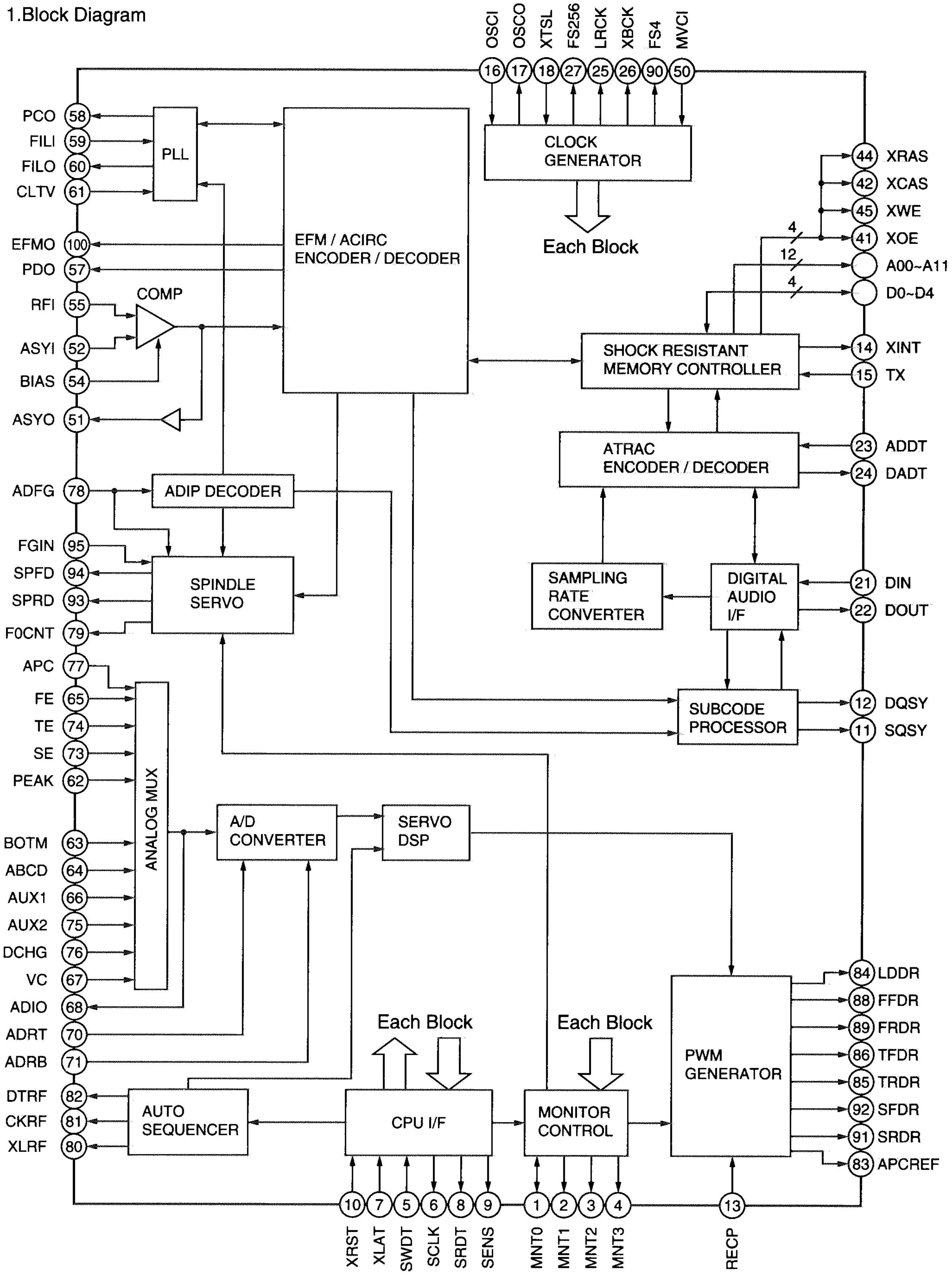
2.Pin Function

Pin No.	Symbol	I/O	Function
1	I	I	I-V converted RF signal I input.
2	J	I	I-V converted RF signal J input.
3	VC	O	Vcc/2 voltage output.
4	A	I	A current input for main beam servo signal.
5	B	I	B current input for main beam servo signal.
6	C	I	C current input for main beam servo signal.
7	D	I	D current input for main beam servo signal.
8	E	I	E current input for side beam servo signal.
9	F	I	F current input for side beam servo signal.
10	PD	I	Reflection light quantity monitor signal input.
11	APC	O	Laser APC output.
12	APCREF	I	Reference voltage input for the laser power intensity setting.
13	GND	-	Connect to GND.
14	TEMPI	I	Connects the temperature sensor.
15	TEMP R	I	Connects the temperature sensor. outputs the reference voltage.
16	SWDT	I	Data input for microcomputer serial interface.
17	SCLK	I	Shift clock input for microcomputer serial interface.
18	XLAT	I	Latch signal input for microcomputer serial interface.Latched when low.
19	XSTBY	I	Standby setting pin. Normal operation when high Standby when low.
20	F0CNT	I	Internal current source setting pin.

Pin No.	Symbol	I/O	Function
21	VREF	O	Reference voltage output.
22	EQADJ	I/O	Equalizer center frequency setting pin.
23	3TADJ	I/O	BPF3T center frequency setting pin.
24	Vcc	-	Power supply.
25	WBLADJ	I/O	BPF22 center frequency setting pin.
26	TE	O	Tracking error signal output.
27	CSLED	-	Connects the sled error signal LPF capacitor.
28	SE	O	Sled error signal output.
29	ADFM	O	ADIP FM signal output.
30	ADIN	I	ADIP signal comparator input.
31	ADAGC	-	Connects the ADIPAGC capacitor.
32	ADFG	O	ADIP2 binary value signal output.
33	AUX	O	13 output / temperature signal output. Switched with serial commands.
34	FE	O	Focus error signal output.
35	ABCD	O	Reflection light quantity signal output for the main beam servo detector.
36	BOTM	O	RF/ABCD bottom hold signal output.
37	PEAK	O	Peak hold signal output for the RF/ABCD signals.
38	RF	O	RF equalizer output.
39	RFAGC	-	Connects the RFAGC capacitor.
40	AGCI	I	RFAGC input.
41	COMPO	O	User comparator output.
42	COMPP	I	User comparator non-inverted input.
43	ADDC	I/O	Connects the capacitor for ADIP amplifier feedback circuit.
44	OPO	O	User operational amplifier output.
45	OPN	I	User operational amplifier inverted input.
46	RFO	O	RF amplifier output. Eye pattern checkpoint.
47	MORFI	I	Input of the groove RF signal with AC coupling.
48	MORFO	O	Groove RF signal output.

■ CXD2652AR(IC350)

1.Block Diagram


OSCI
OSCO
XTSL
FS256
LRCK
XBCK
FS4
MVCI
16
17
18
27
25
26
90
50
CLOCK GENERATOR
Each Block
PCO 58
FILI 59
FILO 60
CLTV 61
PLL
EFMO 100
PDO 57
RFI 55
COMP
ASYI 52
BIAS 54
ASYO 51
EFM / ACIRC ENCODER / DECODER
44 XRAS
42 XCAS
45 XWE
41 XOE
A00~A11
D0~D4
4
12
4
SHOCK RESISTANT MEMORY CONTROLLER
14 XINT
15 TX
ATRAC ENCODER / DECODER
23 ADDT
24 DADT
ADFG 78
ADIP DECODER
FGIN 95
SPFD 94
SPRD 93
F0CNT 79
SPINDLE SERVO
SAMPLING RATE CONVERTER
DIGITAL AUDIO I/F
21 DIN
22 DOUT
APC 77
FE 65
TE 74
SE 73
PEAK 62
SUBCODE PROCESSOR
12 DQSY
11 SQSY
ANALOG MUX
A/D CONVERTER
SERVO DSP
BOTM 63
ABCD 64
AUX1 66
AUX2 75
DCHG 76
VC 67
ADIO 68
ADRT 70
ADRB 71
DTRF 82
CKRF 81
XLRF 80
AUTO SEQUENCER
Each Block
CPU I/F
Each Block
MONITOR CONTROL
PWM GENERATOR
84 LDDR
88 FFDR
89 FRDR
86 TFDR
85 TRDR
92 SFDR
91 SRDR
83 APCREF
10
7
5
6
8
9
1
2
3
4
13
XRST
XLAT
SWDT
SCLK
SRDT
SENS
MNT0
MNT1
MNT2
MNT3
RECP

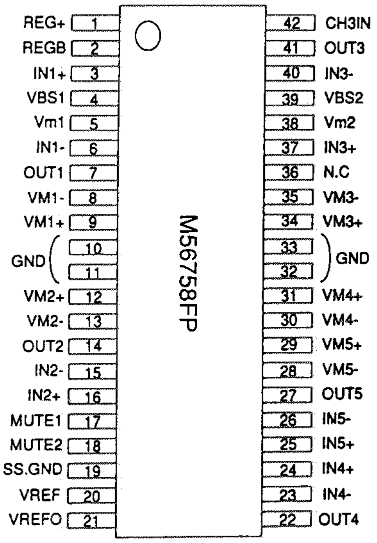
2.Pin Function

Pin No.	Symbol	I/O	Function
1	MNT0	I/O	Monitor output.
2	MNT1	O	Monitor output.
3	MNT2	O	Monitor output.
4	MNT3	O	Monitor output.
5	SWDT	I	Data input for microcomputer serial interface.
6	SCLK	I	Shift clock input for microcomputer serial interface
7	XLAT	I	Latch input for microcomputer serial interface.Latched at the falling edge.
8	SRDT	O	Data output for microcomputer serial interface.
9	SENS	O	Output the internal status corresponding to the microcomputer serial interface address.
10	XRST	I	Reset input. Low:reset
11	SQSY	O	Disc sub code Q sync/ADIP sync output.
12	DQSY	O	Sub code Q sync output in U-bit CD or MD format when the Digital in source is CD or MD
13	RECP	I	Laser power switching input. High:recording power Low:playback power.
14	XINT	O	Interruption request output. Low:when the interruption status occurs.
15	TX	I	Enable signal input for recording data output. High:enabled.
16	OSCI	I	Crystal oscillation circuit input.
17	OSCO	O	Crystal oscillation circuit output. (inverted output of the OSCI pin)
18	XTSL	I	OSCI input frequency switching. High:512Fs(22.5792MHz) Low:1024Fs(45.1584MHz)
19	DVDD	-	Digital power supply.
20	DVss	-	Digital ground.
21	DIN	I	Digital audio interface signal input.
22	DOUT	O	Digital audio interface signal output.
23	ADDT	I	Analog recording input (Connect to the external A/D converter output).
24	DADT	O	REC monitor output/decoded audio data output.
25	LRCK	O	LRCK(44.1kHz) output to the external audio block.
26	XBCK	O	Bit clock(2.8224MHz) output to the external audio block.
27	FS256	O	256Fs output.(11.2896MHz)
28	DVdd	-	Digital power supply.
29	A03	O	External DRAM address output.
30	A02	O	External DRAM address output.
31	A01	O	External DRAM address output.
32	A00	O	External DRAM address output.
33	NC	-	Non connect.
34	A04	O	External DRAM address output.
35	A05	O	External DRAM address output.
36	A06	O	External DRAM address output.
37	A07	O	External DRAM address output.
38	A08	O	External DRAM address output.
39		-	Non connect.
40	DVss	-	Digital ground.
41	XOE	O	External DRAM output enable.
42	XCAS	O	External DRAM $\overline{\text{CAS}}$ output.
43	A09	O	External DRAM address output.
44	XRAS	O	External DRAM $\overline{\text{RAS}}$ output.
45	XWE	O	External DRAM write enable.
46	D1	I/O	External DRAM data bus.
47	D0	I/O	External DRAM data bus.
48	D2	I/O	External DRAM data bus.
49	D3	I/O	External DRAM data bus.
50	MVCI	I	External VCO (784Fs) clock input.

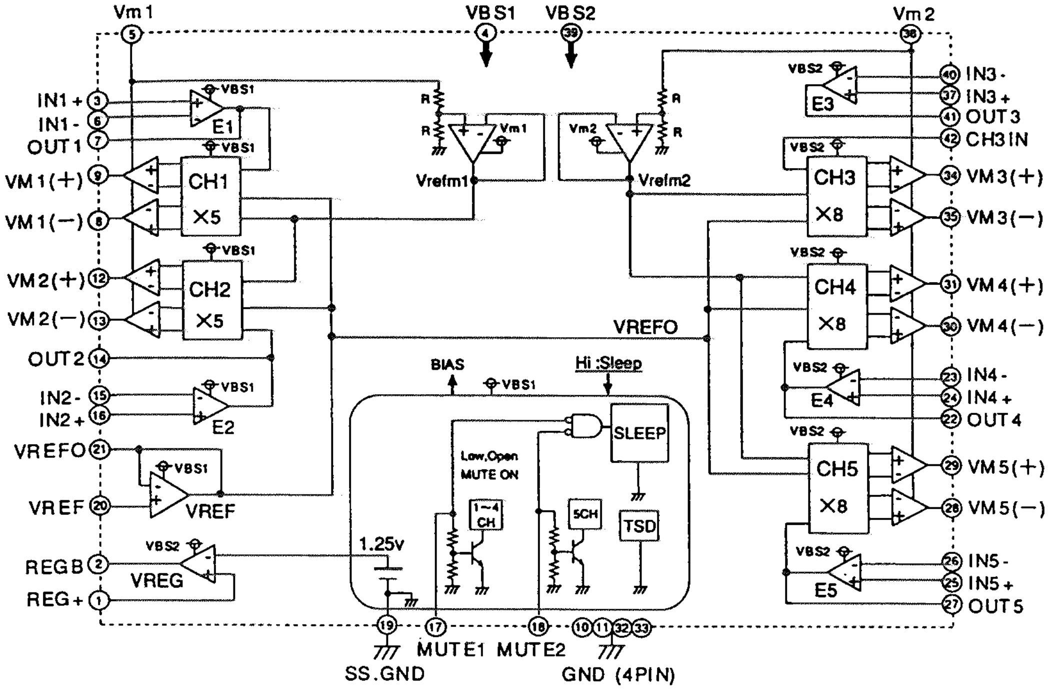
Pin No.	Symbol	I/O	Function
51	ASYO	O	Playback EFM full-swing output. (Low:Vss High:Vdd)
52	ASYI	I	Playback EFM comparator slice voltage input.
53	AVdd	-	Analog power supply.
54	BIAS	I	Playback EFM comparator bias current input.
55	RFI	I	Playback EFM RF signal input.
56	AVss	-	Analog ground.
57	PDO	O	Phase comparison output for analog PLL of EFM decoder.
58	PCO	O	Phase comparison output for master PLL of playback digital PLL and recoding EFM PLL.
59	FILI	I	Filter input for master PLL of playback digital PLL and recording EFM PLL.
60	FILO	O	Filter output for master PLL of playback digital PLL and recording EFM PLL.
61	CLTV	I	Internal VCO control voltage input for master PLL of playback digital PLL and recording EFM PLL.
62	PEAK	I	Peak hold signal input for quantity of light.
63	BOTM	I	Bottom hold signal input for quantity of light.
64	ABCD	I	Signal input for quantity of light.
65	FE	I	Focus error signal input.
66	AUX1	I	Auxiliary input1.
67	VC	I	Center voltage input.
68	ADIO	O	Monitor output for A/D converter input signal.
69	AVdd	-	Analog power supply.
70	ADRT	I	Voltage input for the upper limit of the A/D converter operating range.
71	ADRB	I	Voltage input for the lower limit of the A/D converter operating range.
72	AVss	-	Analog ground.
73	SE	I	Sled error signal input.
74	TE	I	Tracking error signal input.
75	AUX2	I	Auxiliary input 2.
76	DCHG	I	Connect to the low-impedance power supply.
77	TEST4	I	Error signal input for laser digital APC.
78	ADFG	I	ADIP binary FM signal (22.05±1kHz) input.
79	F0CNT	O	CXA2523 current source setting output.
80	XLRF	O	CXA2523 control latch output. Latched at the falling edge.
81	CKRF	O	CXA2523 control shift clock output.
82	DTRF	O	CXA2523 control data output.
83	APCREF	O	Reference PWM output for laser APC.
84	TEST0	-	Non connect
85	TRDR	O	Tracking servo drive PWM output.(-)
86	TFDR	O	Tracking servo drive PWM output.(+)
87	DVdd	-	Digital power supply.
88	FFDR	O	Focus servo drive PWM output.(+)
89	FRDR	O	Focus servo drive PWM output.(-)
90	FS4	-	Non connect.
91	SRDR	O	Sled servo drive PWM output.(-)
92	SFDR	O	Sled servo drive PWM output.(+)
93	SPRD	O	Spindle servo drive output.(PWM(-) or polarity)
94	SPFD	O	Spindle servo drive output.(PWM(+) or PWM absolute value)
95	FGIN	I	Spindle CAV servo FG input.
96	TEST1	I	Test pin.Connect to GND.
97	TEST2	I	Test pin.Connect to GND.
98	TEST3	I	Test pin.Connect to GND.
99	DVss	-	Digital ground.
100	EFMO	O	Low when playback:EFM (encoded data) output when recording.

■ M56758FP-X(IC410):5Channel actuater driver

1.Terminal Layout

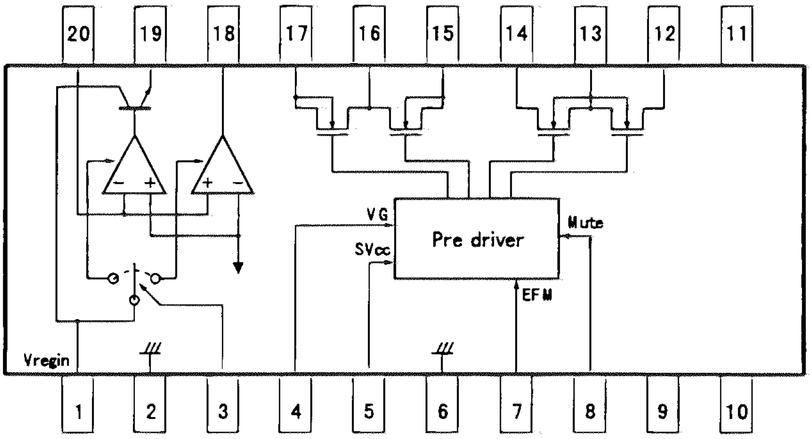

M56758FP
REG+ 1
REGB 2
IN1+ 3
VBS1 4
Vm1 5
IN1- 6
OUT1 7
VM1- 8
VM1+ 9
GND 10
GND 11
VM2+ 12
VM2- 13
OUT2 14
IN2- 15
IN2+ 16
MUTE1 17
MUTE2 18
SS.GND 19
VREF 20
VREFO 21
42 CH3IN
41 OUT3
40 IN3-
39 VBS2
38 Vm2
37 IN3+
36 N.C
35 VM3-
34 VM3+
33 GND
32 GND
31 VM4+
30 VM4-
29 VM5+
28 VM5-
27 OUT5
26 IN5-
25 IN5+
24 IN4+
23 IN4-
22 OUT4

2.Block Diagram


Vm1
VBS1
VBS2
Vm2
IN1+ ③
IN1- ⑥
OUT1 ⑦
VM1(+) ⑨
VM1(−) ⑧
VM2(+) ⑫
VM2(−) ⑬
OUT2 ⑭
IN2- ⑮
IN2+ ⑯
VREFO ㉑
VREF ⑳
REGB ②
REG+ ①
E1
E2
CH1 ×5
CH2 ×5
VREF
VREG
VBS1
VBS2
R
Vrefm1
Vrefm2
Vm1
Vm2
VREFO
BIAS
Hi :Sleep
SLEEP
Low,Open MUTE ON
1~4 CH
5CH
TSD
1.25v
IN3- ㊵
IN3+ ㊲
OUT3 ㊶
CH3IN ㊷
VM3(+) ㉞
VM3(−) ㉟
VM4(+) ㉛
VM4(−) ㉚
IN4- ㉓
IN4+ ㉔
OUT4 ㉒
VM5(+) ㉙
VM5(−) ㉘
IN5- ㉖
IN5+ ㉕
OUT5 ㉗
E3
E4
E5
CH3 ×8
CH4 ×8
CH5 ×8
⑲ SS.GND
⑰ MUTE1
⑱ MUTE2
⑩⑪㉜㉝ GND (4PIN)

■ BD7910FV-X(IC450):Pre driver

1.Block Diagram

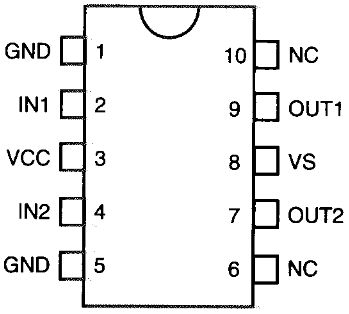


2.Pin Function

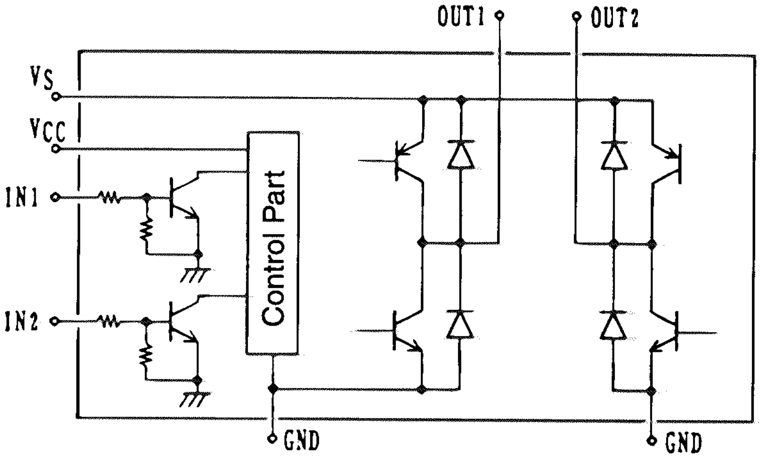
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	Vreg IN	I	Regulator input and regulator power supply	11	NC	-	Non connect
				12	VOD2	O	Sync.output (Lower power MOS,drain)
2	Reg GN	-	Regulator GND	13	VSS	-	"H"bridge GND (Lower power MOS,source)
3	NC	-	Non connect	14	VOD1	O	Sync.output (Lower power MOS,drain)
4	VG	I	Voltage input for power MOS drive	15	VOS1	O	Source output (Upper power MOS,source)
5	SVCC	O	EFM high level output voltage	16	VDD	-	"H" bridge power supply terminal (Upper power MOS,source)
6	PDGND	-	Pre-driver GND				
7	EFM	I	EFM signal input	17	VOS2	O	Source output (Upper power MOS,source)
8	MUTE	I	Mute control (Low active)	18	Reg DRV	O	External PNP drive output for regulator
9	NC	O	Non conncet	19	Reg OUT	O	Reglator output (Emitter follower output)
10	NC	O	Non connect	20	Reg NF	-	Regulator feedbaack terminal

■ LB1638M-X(IC440):Motor driver

1.Terminal Layout


GND 1
IN1 2
VCC 3
IN2 4
GND 5
10 NC
9 OUT1
8 VS
7 OUT2
6 NC

2.Block Diagram

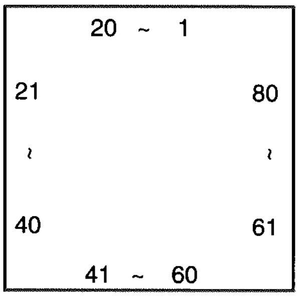

OUT1
OUT2
VS
VCC
IN1
IN2
Control Part
GND
GND

3.Pin Function

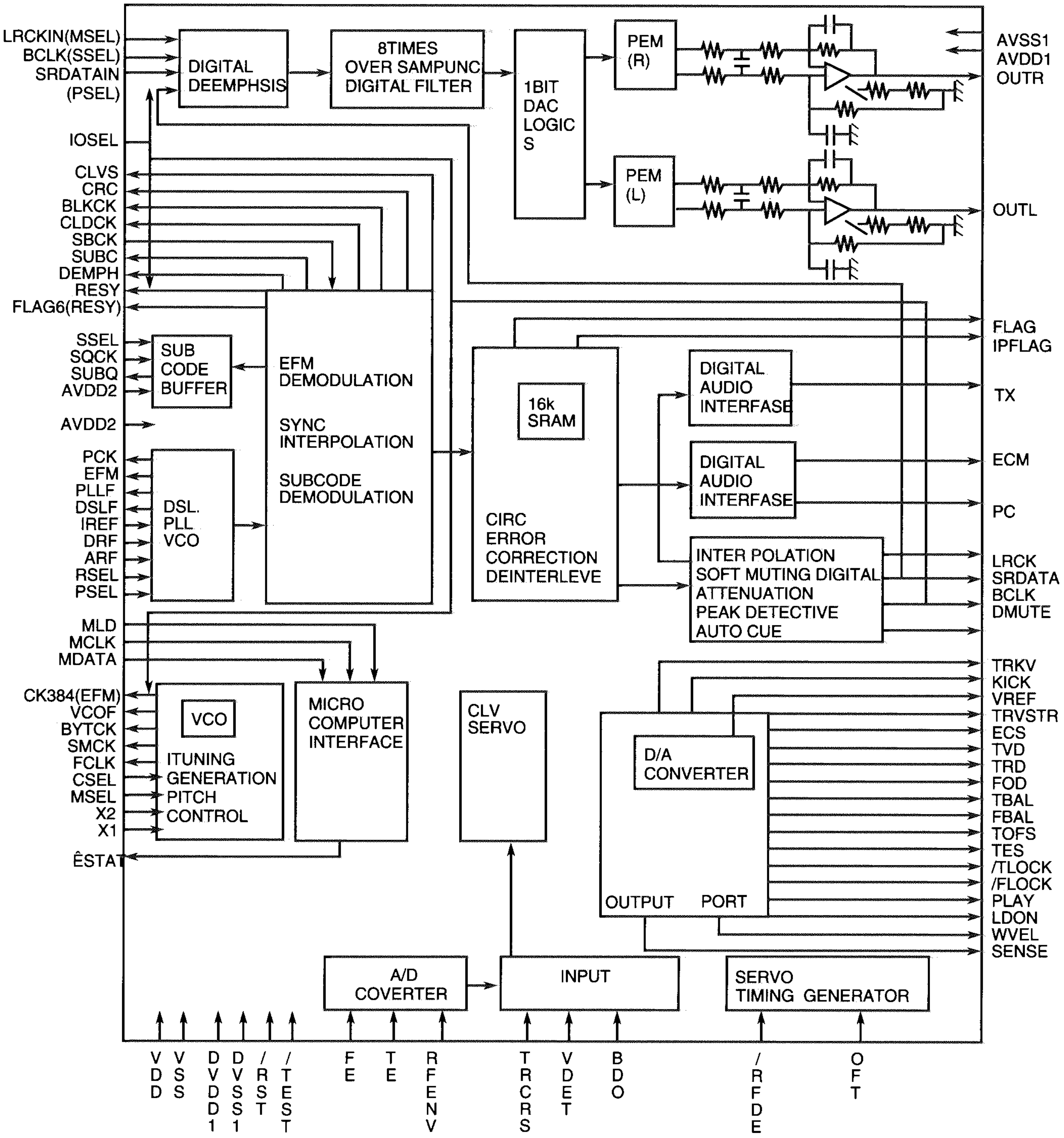
IN1	IN2	OUT1	OUT2	MOTOR
H	L	H	L	CLOCKWISE
L	H	L	H	COUNTER-CLOCKWISE
H	H	L	L	BRAKE
L	L	OFF	OFF	WAITING

■ MN35510(IC603):DIGITAL SERVO&DIGITAL SIGNAL PROCESSER

1. Terminal Layout


20 ~ 1
21
80
≀
≀
40
61
41 ~ 60

2.Block Diagram


LRCKIN(MSEL)
BCLK(SSEL)
SRDATAIN
(PSEL)
IOSEL
CLVS
CRC
BLKCK
CLDCK
SBCK
SUBC
DEMPH
RESY
FLAG6(RESY)
SSEL
SQCK
SUBQ
AVDD2
AVDD2
PCK
EFM
PLLF
DSLF
IREF
DRF
ARF
RSEL
PSEL
MLD
MCLK
MDATA
CK384(EFM)
VCOF
BYTCK
SMCK
FCLK
CSEL
MSEL
X2
X1
ÊSTAT
DIGITAL DEEMPHSIS
8TIMES OVER SAMPUNC DIGITAL FILTER
1BIT DAC LOGIC S
PEM (R)
PEM (L)
AVSS1
AVDD1
OUTR
OUTL
SUB CODE BUFFER
EFM DEMODULATION
SYNC INTERPOLATION
SUBCODE DEMODULATION
DSL. PLL VCO
16k SRAM
CIRC ERROR CORRECTION DEINTERLEVE
DIGITAL AUDIO INTERFASE
DIGITAL AUDIO INTERFASE
INTER POLATION SOFT MUTING DIGITAL ATTENUATION PEAK DETECTIVE AUTO CUE
FLAG
IPFLAG
TX
ECM
PC
LRCK
SRDATA
BCLK
DMUTE
VCO
ITUNING GENERATION PITCH CONTROL
MICRO COMPUTER INTERFACE
CLV SERVO
D/A CONVERTER
OUTPUT PORT
TRKV
KICK
VREF
TRVSTR
ECS
TVD
TRD
FOD
TBAL
FBAL
TOFS
TES
/TLOCK
/FLOCK
PLAY
LDON
WVEL
SENSE
A/D COVERTER
INPUT
SERVO TIMING GENERATOR
VDD
VSS
DVDD1
DVSS1
/RST
/TEST
FE
TE
RFENV
TRCRS
VDET
BDO
/RFDE
OFT

3. Description

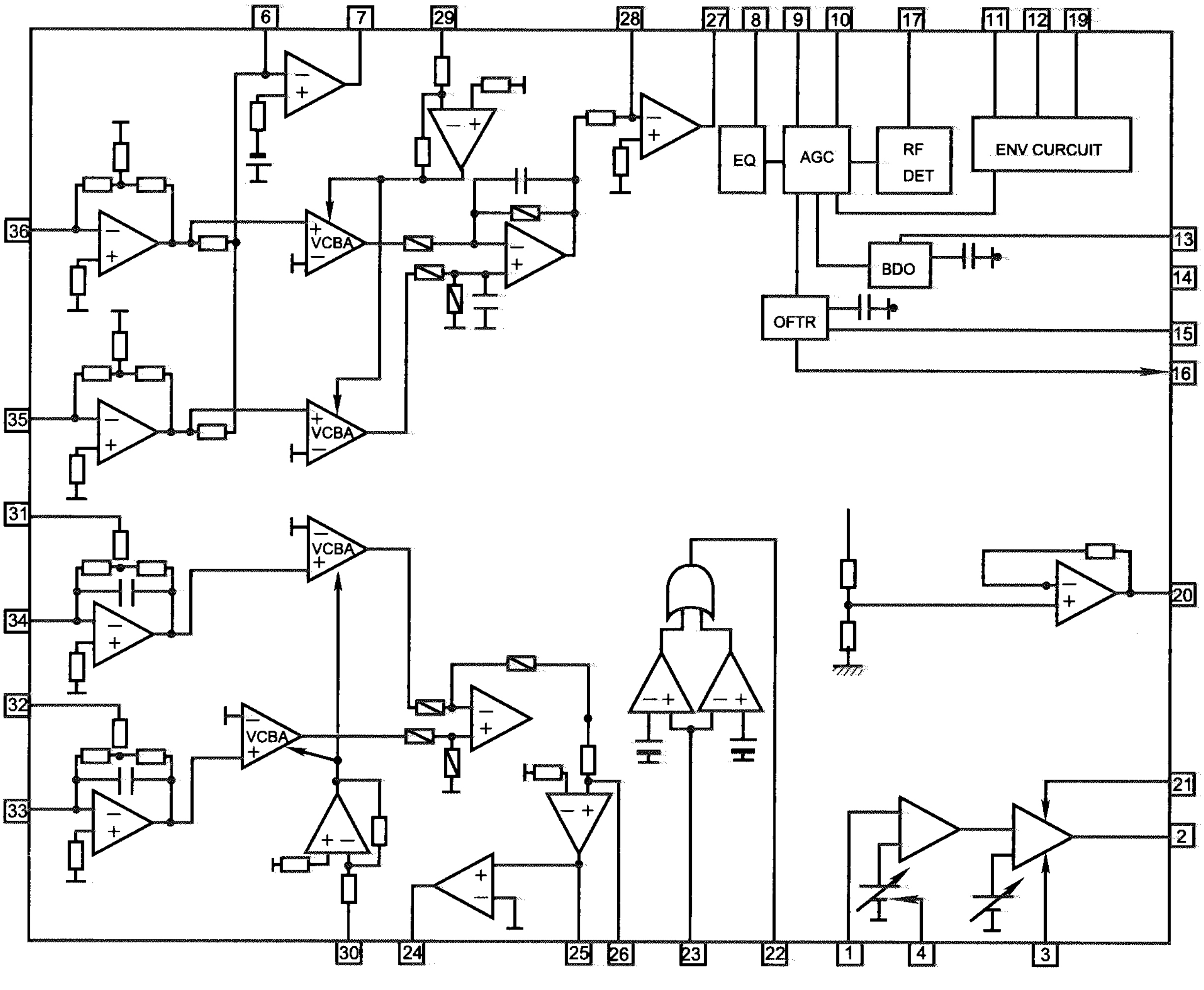
Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	BCLK	O	Not used	41	TES	O	Tracking error shunt signal output(H:shunt)
2	LRCK	O	Not used	42	PLAY	–	Not used
3	SRDATA	O	Not used	43	WVEL	–	Not used
4	DVDD1	–	Power supply (Digital)	44	ARF	I	RF signal input
5	DVSS1	–	Connected to GND	45	IREF	I	Reference current input pin
6	TX	O	Digital audio interface output	46	DRF	I	Bias pin for DSL
7	MCLK	I	μ com command clock signal input (Data is latched at signal's rising point)	47	DSLF	I/O	Loop filter pin for DSL
8	MDATA	I	μ com command data input	48	PLLF	I/O	Loop filter pin for PLL
9	MLD	I	μ com command load signal input	49	VCOF	–	Not used
10	SENSE	O	Sence signal output	50	AVDD2	–	Power supply(Analog)
11	FLOCK	O	Focus lock signal output Active :Low	51	AVSS2	–	Connected to GND(Analog)
12	TLOCK	O	Tracking lock signal output Active :Low	52	EFM	–	Not used
13	BLKCK	O	sub-code・block・clock signal output	53	PCK	–	Not used
14	SQCK	I	Outside clock for sub-code Q resister input	54	PDO	–	Not used
15	SUBQ	O	Sub-code Q -code output	55	SUBC	–	Not used
16	DMUTE	–	Connected to GND	56	SBCK	–	Not used
17	STATUS	O	Status signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK)	57	VSS	–	Connected to GND(for X'tal oscillation circuit)
18	RST	I	Reset signal input (L:Reset)	58	XI	I	Input of 16.9344MHz X'tal oscillation circuit
19	SMCK	–	Not used	59	X2	O	Output of X'tal oscillation circuit
20	PMCK	–	Not used	60	VDD	–	Power supply(for X'tal cscillation circuit)
21	TRV	O	Traverse enforced output	61	BYTCK	–	Not used
22	TVD	O	Traverse drive output	62	CLDCK	–	Not used
23	PC	–	Not used	63	FLAG	–	Not used
24	ECM	O	Spindle motor drive signal (Enforced mode output) 3-State	64	IPPLAG	–	Not used
25	ECS	O	Spindle motor drive signal (Servo error signal output)	65	FLAG	–	Not used
26	KICK	O	Kick pulse output	66	CLVS	–	Not used
27	TRD	O	Tracking drive output	67	CRC	–	Not used
28	FOD	O	Focus drive output	68	DEMPH		Not used
29	VREF	I	Reference voltage input pin for D/A output block (TVD,FOD,FBA,TBAL)	69	RESY	–	Not used
30	FBAL	O	Focus Balance adjust signal output	70	IOSEL	–	pull up
31	TBAL	O	Tracking Balance adjust signal output	71	TEST	–	pull up
32	FE	I	Focus error signal input(Analog input)	72	AVDD1	–	Power supply(Digital)
33	TE	I	Tracking error signal input(Analog input)	73	OUT L	O	Lch audio output
34	RF ENV	I	RF envelope signal input(Analog input)	74	AVSS1	–	Connected to GND
35	VDET	I	Vibration detect signal input(H:detect)	75	OUT R	O	Rch audio output
36	OFT	I	Off track signal input(H:off track)	76	RSEL	–	pull up
37	TRCRS	I	Track cross signal input	77	CSEL	–	Connected to GND
38	RFDET	I	RF detect signal input(L:detect)	78	PSEL	–	Connected to GND
39	BDO	I	BDO input pin(L:detect)	79	MSEL	–	Connected to GND
40	LDON	O	Laser ON signal output(H:on)	80	SSEL	–	Pull up

■ AN8806SB(IC601):RF&Servo AMP

1.Treminal Layout

PD	1	36	PDAC
LD	2	35	PDBD
LDON	3	34	PDF
LDP	4	33	PDE
VCC	5	32	PDER
RF-	6	31	PDFR
RF OUT	7	30	TBAL
RF IN	8	29	FBAL
C.AGC	9	28	EF-
ARF	10	27	EF OUT
C.ENV	11	26	TE-
C.EA	12	25	TE OUT
CS BDO	13	24	CROSS
BDO	14	23	TE BPF
CS BRT	15	22	VDET
OFTR	16	21	LD OFF
/NRFDET	17	20	VREF
GND	18	19	ENV

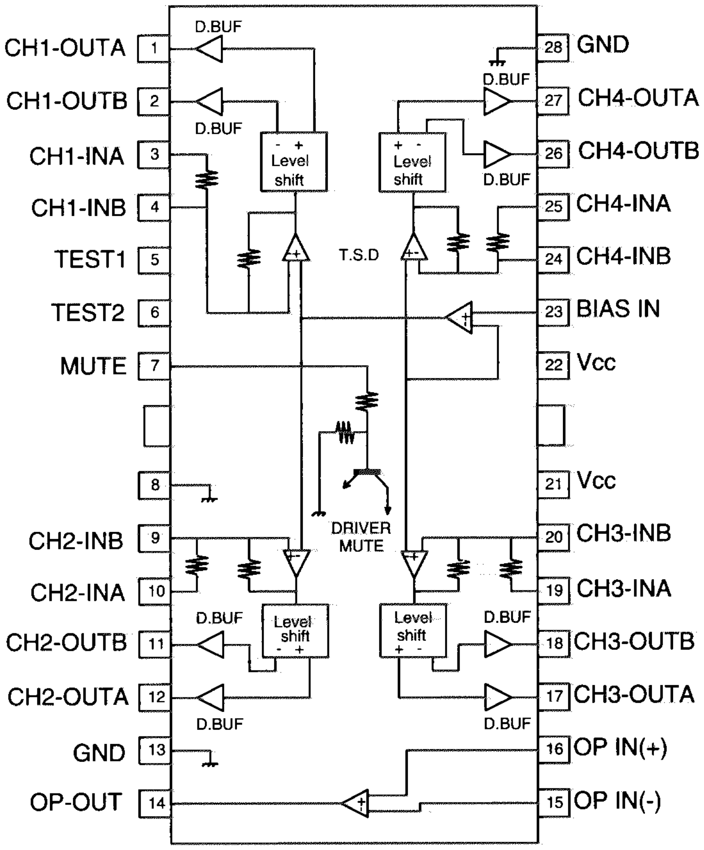
2.Block Diagram


6
7
29
28
27
8
9
10
17
11
12
19
EQ
AGC
RF DET
ENV CURCUIT
BDO
OFTR
VCBA
36
35
31
34
32
33
13
14
15
16
20
21
2
30
24
25
26
23
22
1
4
3

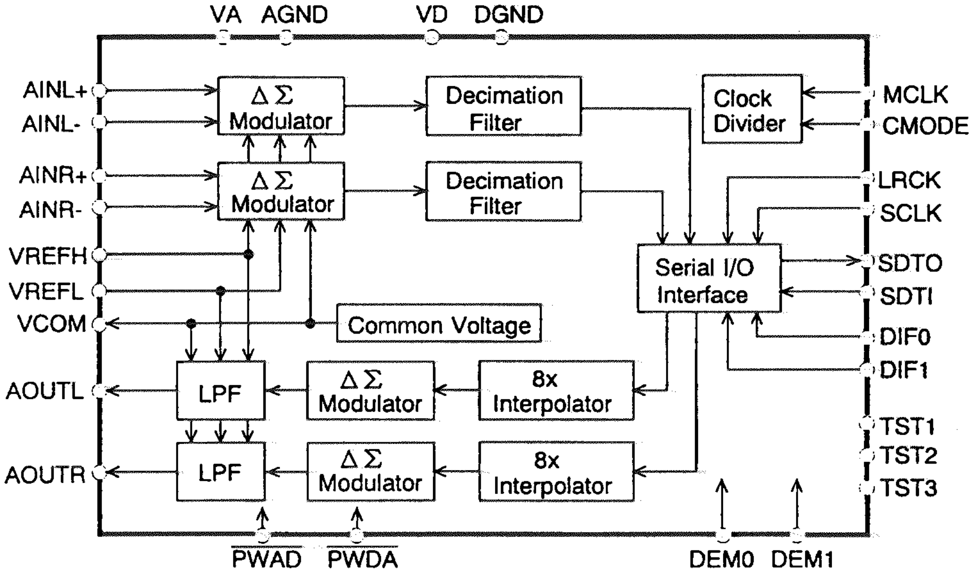
3. Functions

Pin No.	Symbol	I/O	Functions and operations
1	PD	I	APC amp input terminal
2	LD	O	APC amp output terminal
3	LD ON	I	APC ON/OFF control terminal
4	LDP	--	Connect to ground
5	VCC	--	Power supply
6	RF-	I	Inverse input pin for RF amp
7	RF OUT	O	RFamp output
8	RF IN	I	RF input
9	C.AGC	I/O	Connecting pin of AGC loop filter
10	ARF	O	RF output
11	C.ENV	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
12	C.EA	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
13	CS BDO	I/O	A capacitor is connected to detect the lower envelope of RF signal
14	BDO	O	BDO output pin
15	CS BRT	I/O	A capacitor is connected to detect the lower envelope of RF signal
16	OFTR	O	Of-track status signal output
17	/NRFDET	O	RF detection signal output
18	GND	--	Ground
19	ENV	O	Envelope output
20	VREF	O	Reference voltage output
21	LD OFF	--	Connect to ground
22	VDET	O	Vibration detection signal output
23	TE BPF	I	Input pin of tracking error through BPF
24	CROSS	O	Tracking error cross output
25	TE OUT	O	Tracking error signal output
26	TE-	I	Inverse input pin for tracking error amp
27	FE OUT	O	Output pin of focus error
28	FE-	I	Inverse input pin for focus error amp
29	FBAL	I	Focus balance control
30	TBAL	I	Tracking balance control
31	PDFR	I/O	F I-V amp gain control
32	PDER	I/O	E I-V amp gain control
33	PDF	I	I-V amp input
34	PDE	I	I-V amp input
35	PD BD	I	I-V amp input
36	PD AC	I	I-V amp input

■ BA6897FP-W(IC602) 4channel driver

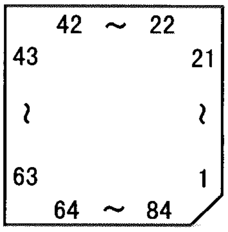

CH1-OUTA 1
CH1-OUTB 2
CH1-INA 3
CH1-INB 4
TEST1 5
TEST2 6
MUTE 7
8
CH2-INB 9
CH2-INA 10
CH2-OUTB 11
CH2-OUTA 12
GND 13
OP-OUT 14
28 GND
27 CH4-OUTA
26 CH4-OUTB
25 CH4-INA
24 CH4-INB
23 BIAS IN
22 Vcc
21 Vcc
20 CH3-INB
19 CH3-INA
18 CH3-OUTB
17 CH3-OUTA
16 OP IN(+)
15 OP IN(-)
D.BUF
Level shift
T.S.D
DRIVER MUTE

■ AK4520A-VF-X(IC480):A/D&D/A Converter


VA
AGND
VD
DGND
AINL+
AINL-
AINR+
AINR-
VREFH
VREFL
VCOM
AOUTL
AOUTR
ΔΣ Modulator
Decimation Filter
Clock Divider
Serial I/O Interface
Common Voltage
LPF
8x Interpolator
MCLK
CMODE
LRCK
SCLK
SDTO
SDTI
DIF0
DIF1
TST1
TST2
TST3
PWAD
PWDA
DEM0
DEM1

■ MN173222JABJ(IC751):Cassette,CD controller

1.Terminal Layout

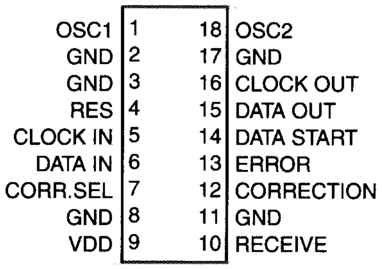


2.Pin Function

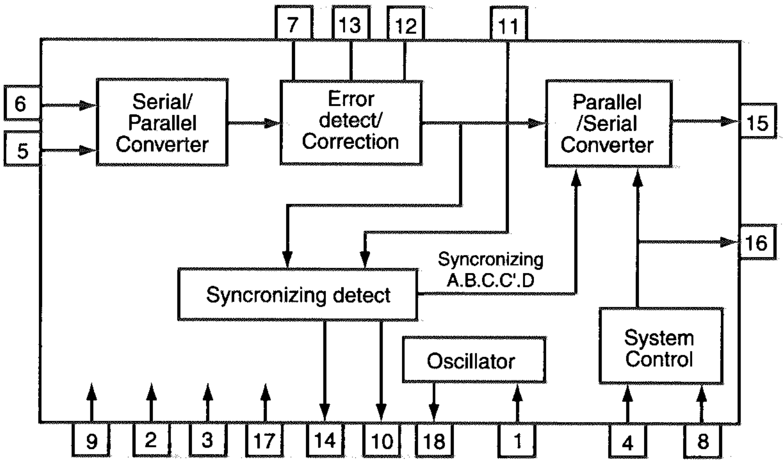
PIN NO.	Symbol	I/O	Function	PIN NO.	Symbol	I/O	Function
1~12			Connect to GND.	54	MDATA	O	Data signal output.
13	MS.IN	I	Music scan signal input.	55	MCLK	O	Clock signal output.
14	NR	O	Dolby REC output.	56	C3DATA	O	Data signal output to IC801.
15	CAPN	O	Capsten control signal output.	57	SCK	O	Clock signal output to IC801.
16	PLZ	O	Plunger control signal output.	58	CHST	O	Strobe signal output to IC801.
17~20		-	Connect to GND.	59	CHRQI	I	Changer micon signal it to be posible to communicate.
21	OMT	O	Mute signal output when tepe in played.				
22	RMT	O	Mute signal output when Recording.	60	$\overline{DOM}$/EXP	I/O	Destination switch terminal L:DOM H:EXP
23	GND	-	Connect to GND.				
24	PB/REC	O	NR Recording switch signal.	61~67		-	Connect to GND.
25	REC	O	Output when Recording.	68	$\overline{RESET}$	I	Reset signal input.
26	BIAS	O	Recording bias oscillation.	69	GND	-	Connect to GND.
27~39		-	Connect to GND.	70	NC	-	Non connect.
40	CDRDY	I	Ready signal from Micon.	71	GND	-	Connect to GND.
41	CDCLK	I	Clock signal from Micon.	72	OSC	-	Oscillation terminal (6MHz).
42	CDCMD	I	Command data from Micon.	73	OSC	-	Oscillation terminal (6MHz).
43	CDSTAT	I	Status signal from Micon.	74	VDD	-	Power supply.
44		-	Pull down.	75	DCSIN	I	DCS signal input.
45	SQCK	I	Clock signal for sub code register.	76	DCSOUT	O	DCS signal output.
46	SUBQ	I	Sub code ,Q code input.	77.78		-	Connect to GND.
47	LSIPOWER	O	Control output for CDIC power.	79	$\overline{PSW}$	I	Play switch cassette mahcanism ON/OFF.
48	STAT	I	Status.				
49	$\overline{RESTSW}$	I	Rest switch ON/OFF input.	80	PALS	I	Reel pulse input.
50	DETCT	I	Disc sensor input.	81	$\overline{FREC}$	I	Forward side recording.
51		-	Connect to GND.	82	$\overline{RREC}$	I	Reverse side recording.
52	$\overline{RST}$	O	Rest signal output.	83	$\overline{PACK}$	I	Tape detect.
53	MLD	O	Load signal output.	84		-	Connect to GND.

■LC7073(IC261):Radio Data System

1.Terminal Layout


OSC1 1
GND 2
GND 3
RES 4
CLOCK IN 5
DATA IN 6
CORR.SEL 7
GND 8
VDD 9
18 OSC2
17 GND
16 CLOCK OUT
15 DATA OUT
14 DATA START
13 ERROR
12 CORRECTION
11 GND
10 RECEIVE

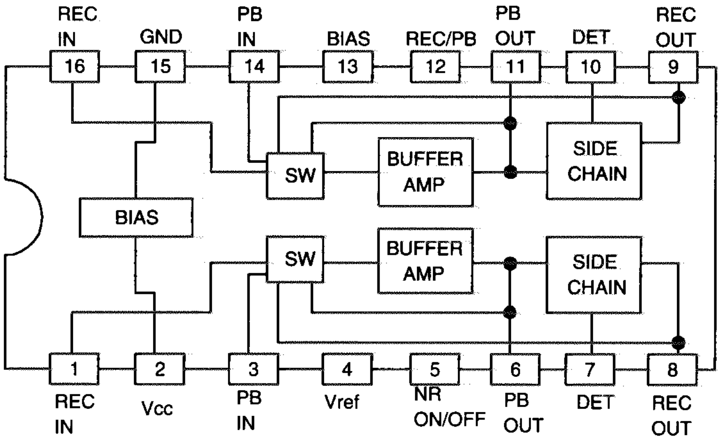
2.Block Diagram


7
13
12
11
6
5
Serial/ Parallel Converter
Error detect/ Correction
Parallel /Serial Converter
15
16
Syncronizing detect
Syncronizing A.B.C.C'.D
Oscillator
System Control
9
2
3
17
14
10
18
1
4
8

3.Pin Function

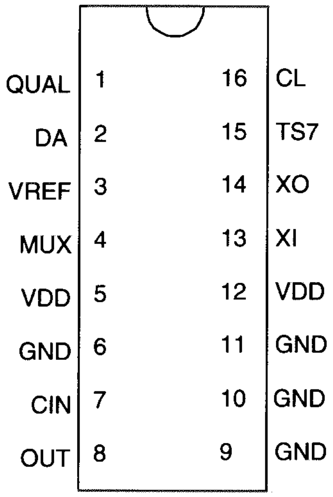
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	OSC1	I	Oscillation.	10	RECEIVE	-	Non connect.
2	GND	-	Connect to GND.	11	GND	-	Connect to GND.
3	GND	-	Connect to GND.	12	CORRECTION	-	Non connect.
4	RES	I	Reset signal input.	13	ERROR	-	Non connect.
5	CLOCK IN	I	RDS clock input.	14	DATA START	O	Data start signal for block data to output serial data.
6	DATA IN	I	RDS data input.				
7	CORR.SEL	I	Non connect.	15	DATA OUT	O	Serial data output.
8	GND	I	Connect to GND.	16	CLOCK OUT	O	Data output of serial data output.
9	VDD	-	Power supply.	17	GND	-	Connect to GND
				18	OSC2	O	Oscillation terminal

■ HA12136A(IC561):Noise Reduction Amplifire


REC IN
16
GND
15
PB IN
14
BIAS
13
REC/PB
12
PB OUT
11
DET
10
REC OUT
9
SW
BUFFER AMP
SIDE CHAIN
BIAS
SW
BUFFER AMP
SIDE CHAIN
1
REC IN
2
Vcc
3
PB IN
4
Vref
5
NR ON/OFF
6
PB OUT
7
DET
8
REC OUT

■BU1923(IC262):RDS Detector

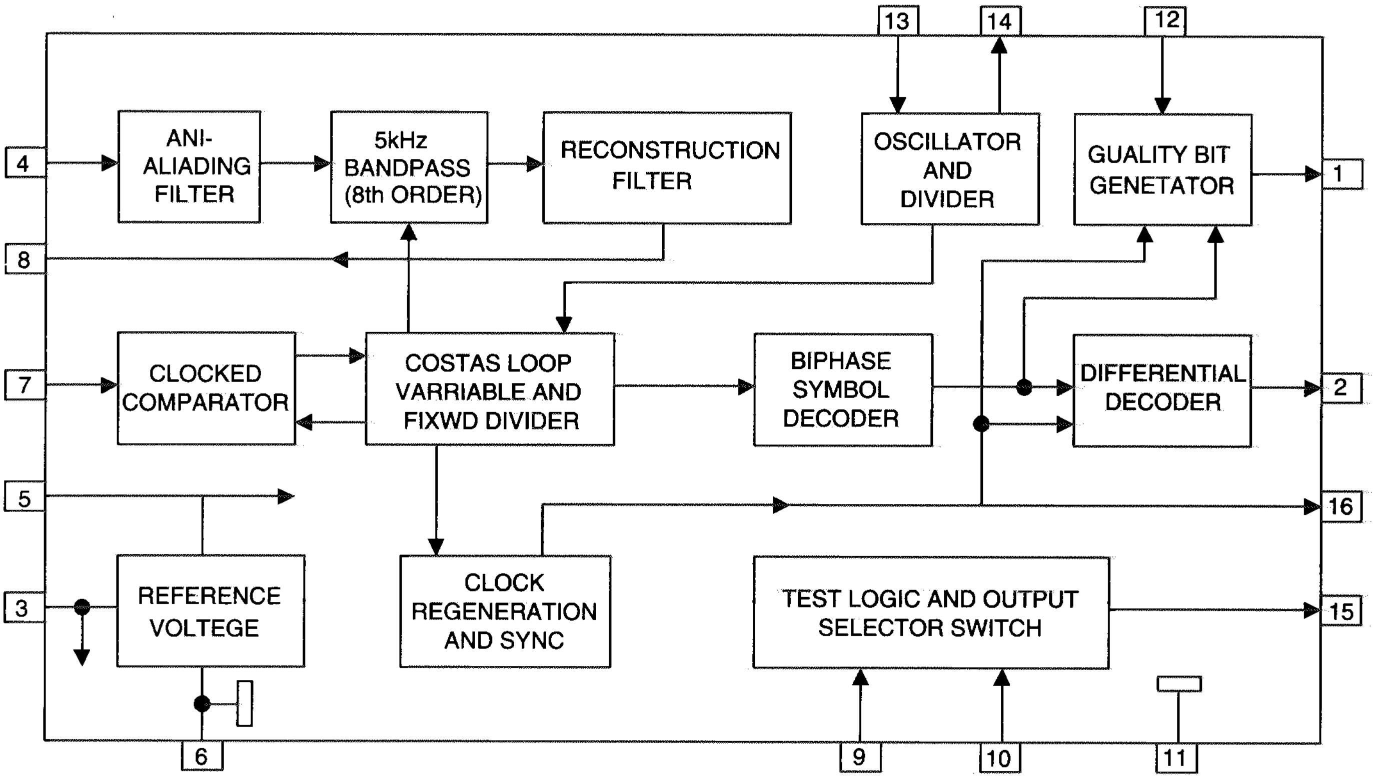
1.Terminal Layout


QUAL 1
DA 2
VREF 3
MUX 4
VDD 5
GND 6
CIN 7
OUT 8
16 CL
15 TS7
14 XO
13 XI
12 VDD
11 GND
10 GND
9 GND

2.Pin Functiont

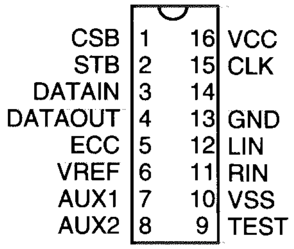
Pin No.	Symbol	I/O	Function
1	QUAL	--	Non connection
2	DA	O	RDS data output
3	VREF	O	Reference voltage output
4	MUX	I	Multiplex signal input
5	VDD	--	+5Vsupply voltage for analog
6	GND	--	Ground for analog part(0V)
7	CIN	I	Subcarrier outputof reconstruction filter
8	OUT	O	Ground for digital part(0V)
9	GND	--	Ground for digital part(0V)
10	GND	--	Ground for digital part(0V)
11	GND	--	Ground for digital part(0V)
12	VDD	--	+5Vsupply voltage for digital part
13	XI	I	Oscilator input
14	XO	O	Oscilator output
15	TS7	--	Non connection
16	CL	O	RDS clock output

3.Block Diagram

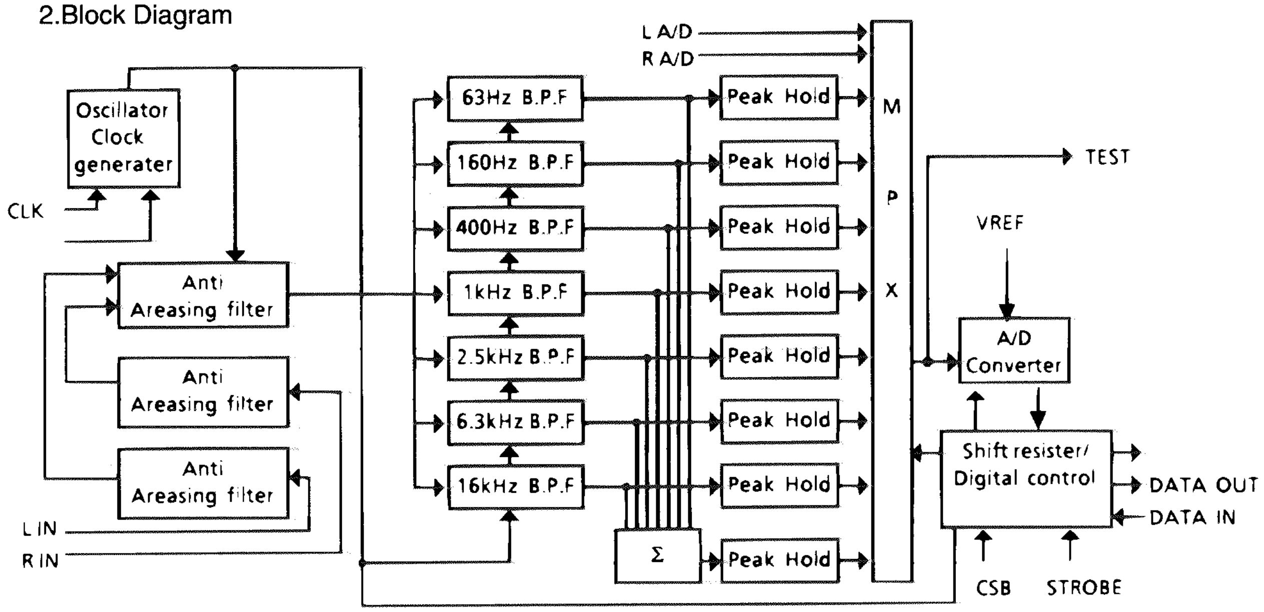

13
14
12
ANI-ALIADING FILTER
5kHz BANDPASS (8th ORDER)
RECONSTRUCTION FILTER
OSCILLATOR AND DIVIDER
GUALITY BIT GENETATOR
4
8
1
CLOCKED COMPARATOR
COSTAS LOOP VARRIABLE AND FIXWD DIVIDER
BIPHASE SYMBOL DECODER
DIFFERENTIAL DECODER
7
2
5
16
REFERENCE VOLTEGE
CLOCK REGENERATION AND SYNC
TEST LOGIC AND OUTPUT SELECTOR SWITCH
3
15
6
9
10
11

■XR1099(IC704):7 Channel graphic equalizer filter A/D converter

1.Terminal Layout


CSB 1
STB 2
DATAIN 3
DATAOUT 4
ECC 5
VREF 6
AUX1 7
AUX2 8
16 VCC
15 CLK
14
13 GND
12 LIN
11 RIN
10 VSS
9 TEST

2.Block Diagram

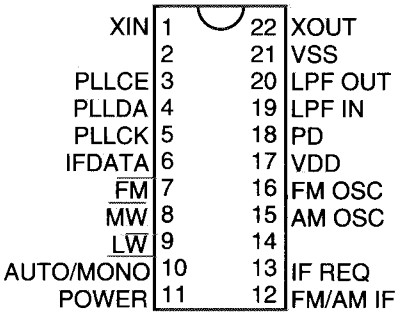

Oscillator Clock generater
CLK
Anti Areasing filter
Anti Areasing filter
Anti Areasing filter
L IN
R IN
63Hz B.P.F
160Hz B.P.F
400Hz B.P.F
1kHz B.P.F
2.5kHz B.P.F
6.3kHz B.P.F
16kHz B.P.F
Σ
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
Peak Hold
L A/D
R A/D
M
P
X
TEST
VREF
A/D Converter
Shift resister/ Digital control
DATA OUT
DATA IN
CSB
STROBE

3.Pin Function

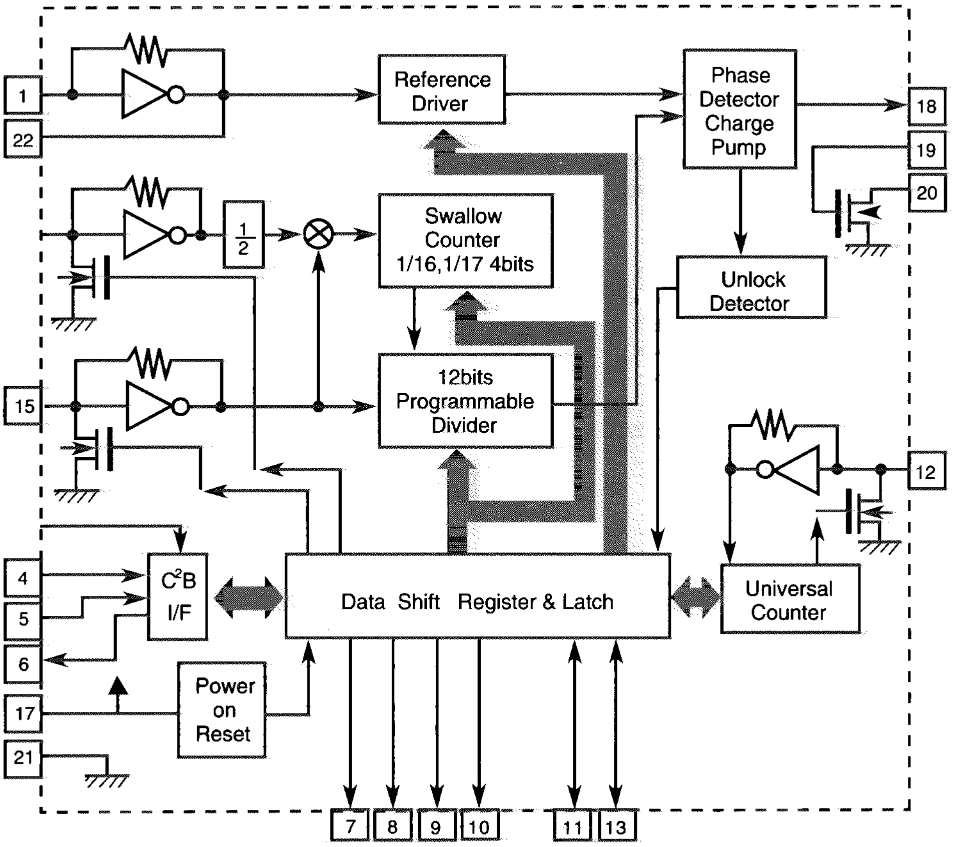
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	CSB	I	Chip select signal input.	9	TEST	-	Terminal of TEST.
2	STB	I	Strobe signal input.	10	VSS	-	Power supply (-5V).
3	DATAIN	I	Data input.	11	RIN	I	Connect to GND.
4	DATAOUT	O	Data output.	12	LIN	I	Sound signal input.
5	ECC	-	Non connect.	13	GND	-	Connect to GND.
6	VREF	I	Connect to GND	14		I	Connect to GND.
7	AUX1	I	Connect to GND	15	CLK	I	Clock signal input.
8	AUX2	I	Connect to GND	16	VCC	-	Power supply (+5V).

■ LC72131(IC121):PLL Synthesizer

1. Terminal Layout


XIN 1
2
PLLCE 3
PLLDA 4
PLLCK 5
IFDATA 6
FM 7
MW 8
LW 9
AUTO/MONO 10
POWER 11
22 XOUT
21 VSS
20 LPF OUT
19 LPF IN
18 PD
17 VDD
16 FM OSC
15 AM OSC
14
13 IF REQ
12 FM/AM IF

2. Block Diagram

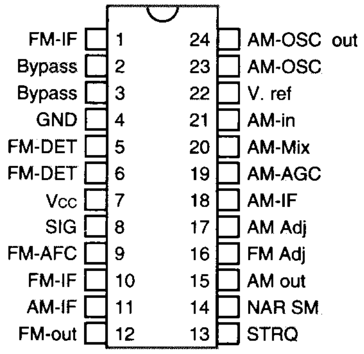

1
22
15
4
5
6
17
21
18
19
20
12
7
8
9
10
11
13
Reference Driver
Phase Detector Charge Pump
1/2
Swallow Counter 1/16,1/17 4bits
12bits Programmable Divider
Unlock Detector
C²B I/F
Data Shift Register & Latch
Universal Counter
Power on Reset

3.Pin Functions

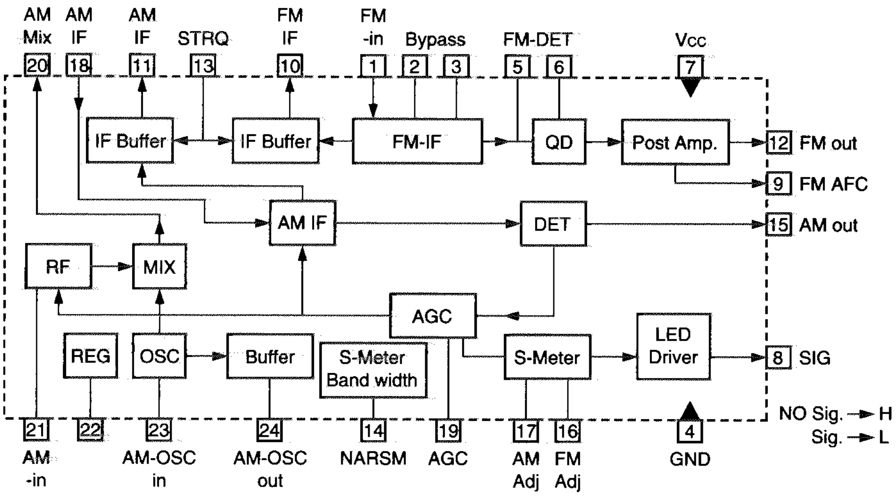
Pin No.	Symbol	I/O	Functions	Pin No.	Symbol	I/O	Functions
1	Xin	I	Crystal oscillator (7.2MHz).	12	FM/AM IF	I	Universal counter input
2		--	Not nse	13	IF REQ	O	Output the "IF-signal request" to IC102
3	PLLCE	I	Fix the chip enable to "H" when inputting (DI) and outputting (DO) the serial data	14		I	Not use
4	PLLDA	I	Receive the control data from the controller (IC801).	15	AMOSC		Input the local oscillator signal of AM.
5	PLLCK	I	This clock is used to synchronize data when transmitting the data of DI and DO.	16	FM OSC	I	Input the local oscillator signal of FM.
6	IFDATA	O	Transmit the data from LC72131 to the controller which is synchronized with CK.	17	VDD	O	This is a terminal of power supply.
7	$\overline{\text{FM}}$	O	It is "L" on FM mode.	18	PD	O	PLL charge pump output : When the local oscillator signal frequency is higher than the reference frequency high level signals will output. When it is lower than the reference frequency, low level signals will output.When it is same as reference frequency signals, it will be floating.
8	$\overline{\text{MW}}$	O	It is "L" on MW mode.	19	LPF IN	I	Transistor used for the PLL active low-pass filterr
9	$\overline{\text{LW}}$	O	It is "L" on LW mode.	20	LPF OUT	O	Transistor used for the PLL active low-pass filterr
10	AUTO/$\overline{\text{MONO}}$	O	It is "L" on monaural, "L" on auto	21	VSS	--	Connected toGND
11	POWER	O	Regulator control signal P ON "H" , STANDBY "L"	22	X out	O	Crystal oscillator(7.2MHz).

■ LA1266A(IC104) : FM/AM IF AMP & detector

1.Terminal Layout


FM-IF 1
Bypass 2
Bypass 3
GND 4
FM-DET 5
FM-DET 6
Vcc 7
SIG 8
FM-AFC 9
FM-IF 10
AM-IF 11
FM-out 12
24 AM-OSC out
23 AM-OSC
22 V. ref
21 AM-in
20 AM-Mix
19 AM-AGC
18 AM-IF
17 AM Adj
16 FM Adj
15 AM out
14 NAR SM
13 STRQ

2.Block Diagram

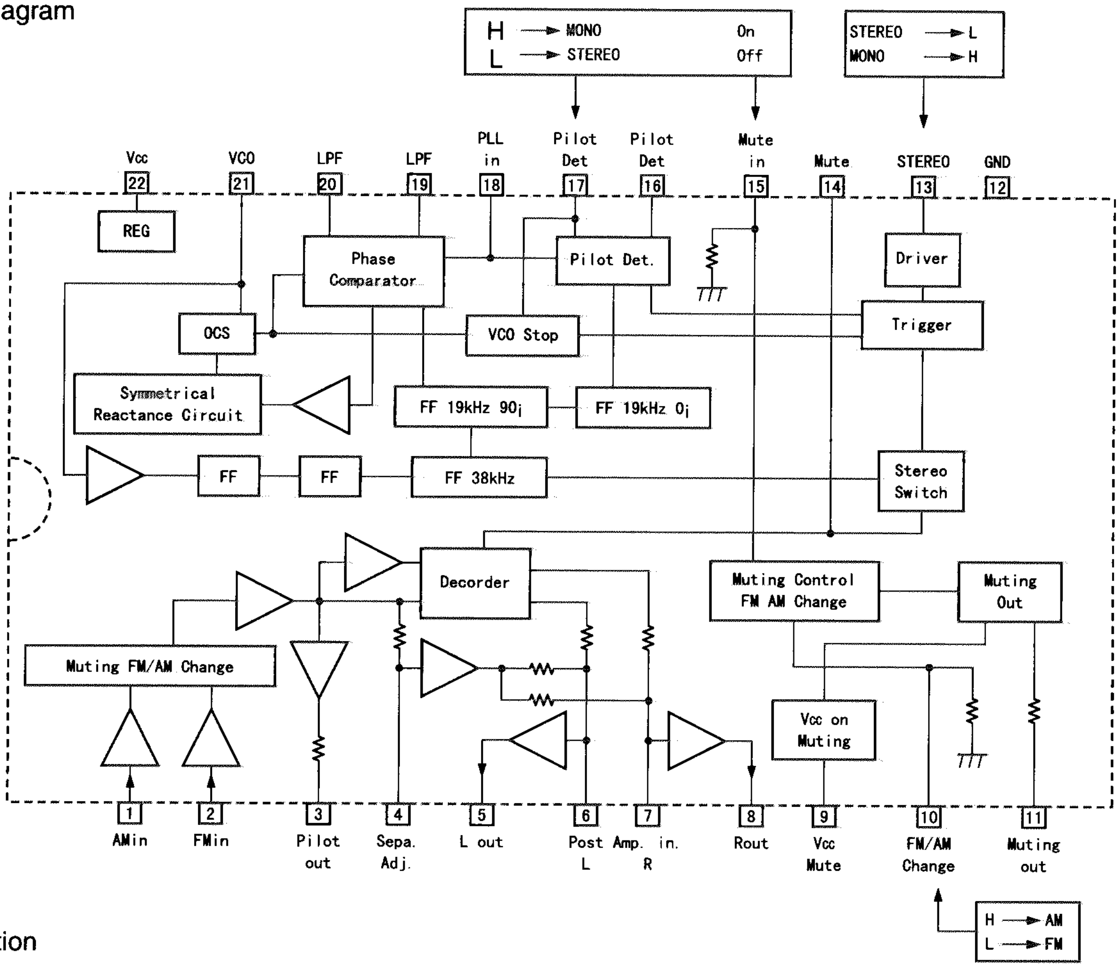

AM Mix 20
AM IF 18
AM IF 11
STRQ 13
FM IF 10
FM -in 1
Bypass 2 3
FM-DET 5 6
Vcc 7
IF Buffer
IF Buffer
FM-IF
QD
Post Amp.
12 FM out
9 FM AFC
AM IF
DET
15 AM out
RF
MIX
AGC
REG
OSC
Buffer
S-Meter Band width
S-Meter
LED Driver
8 SIG
NO Sig. → H
Sig. → L
21 AM -in
22
23 AM-OSC in
24 AM-OSC out
14 NARSM
19 AGC
17 AM Adj
16 FM Adj
4 GND

3.Pin Function

Pin No.	Symbol	I/O	Function
1	FM IF	I	This is an input terminal of FM IF signal.
2,3	Bypass	-	Bypass of FM IF Amp.
4	GND	-	Connect to GND
5,6	FM DET	-	FM detect transformer.
7	Vcc	-	Power supply terminal
8	SIG	O	Auto-stop drive signal output for mute and tune.
9	FM AFC	O	This is an output terminal of voltage for FM-AFC.
10	FM IF out	O	When the signal of IF REQ of IC121(LC72131)applied to pin12,the signal of FM IF does output.
11	AM IF out	O	When the signal of IF REQ of IC121(LC72131)applied to pin12,the signal of AM IF does output.
12	FM out	O	FM detection output.
13	STRQ	I	The IF-signal come out from pin10(FM-IF)or pin11 (AM-IF) while this terminal going to "High"
14	NAR SM	-	Control the Band-width of signal meter.
15	AM out	O	AM detection output.
16	FM adj	-	For adjust the stop level(or must level) of FM.
17	AM adj	-	For adjust the stop level(or must level) of AM.
18	AM -IF	I	Input of AM if signal.
19	AM-AGC	I	This is an AGC voltage input terminal for AM.
20	AM-MIX	O	This is an output terminal for AM mixer.
21	AM-IN	I	This is an input terminal for AM RF signal.
22	V.REF	-	Resister value between pin9 and pin22 desides the frequency width of the input signal.
23	AM-OSC	-	This is a terminal of AM local oscillation circuit.
24	AM-OSC out	O	AM local oscillation signal output.

■ LA3401(IC105):FM MPS DETECT

1.Block Diagram

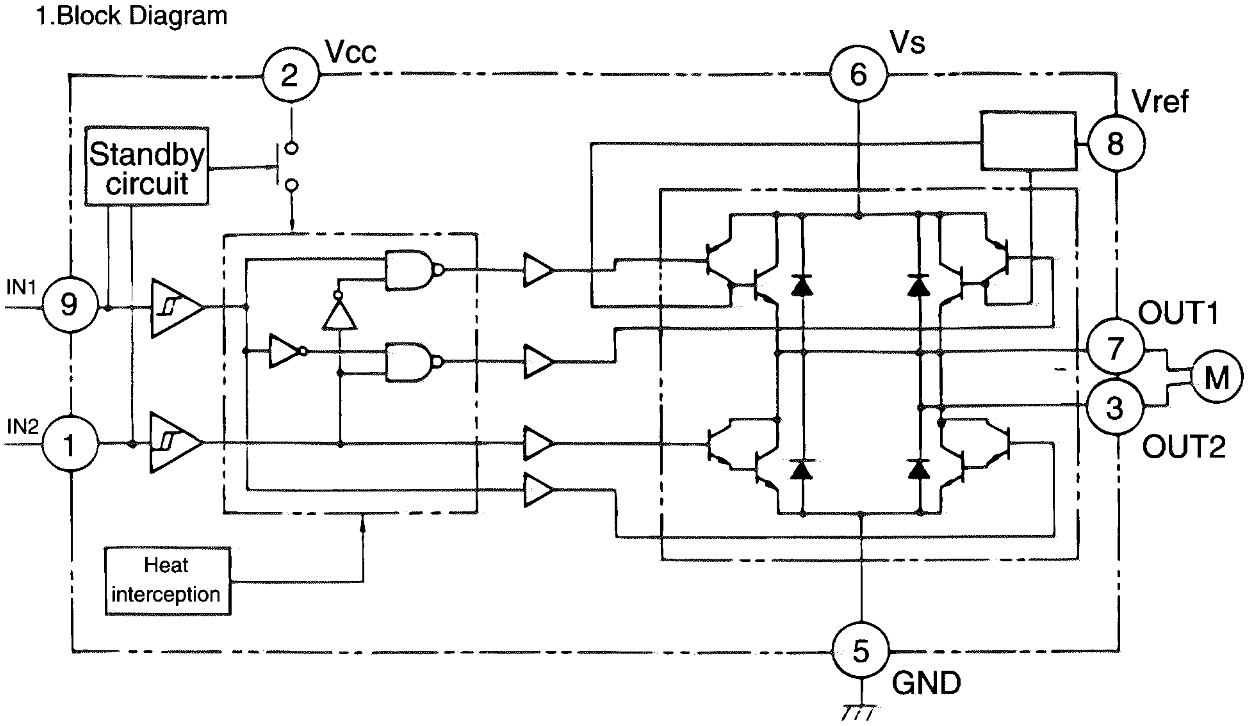

H → MONO On
L → STEREO Off
STEREO → L
MONO → H
Vcc
VCO
LPF
LPF
PLL in
Pilot Det
Pilot Det
Mute in
Mute
STEREO
GND
22
21
20
19
18
17
16
15
14
13
12
REG
Phase Comparator
Pilot Det.
Driver
OCS
VCO Stop
Trigger
Symmetrical Reactance Circuit
FF 19kHz 90¡
FF 19kHz 0¡
FF
FF
FF 38kHz
Stereo Switch
Decorder
Muting Control FM AM Change
Muting Out
Muting FM/AM Change
Vcc on Muting
1
2
3
4
5
6
7
8
9
10
11
AMin
FMin
Pilot out
Sepa. Adj.
L out
Post Amp. in.
L
R
Rout
Vcc Mute
FM/AM Change
Muting out
H → AM
L → FM

2.Pin Function

Pin No.	Symbol	I/O	Function
1	AM in	I	This is an input terminal for AM detection signal.
2	FM in	I	This is an input terminal for FM detection signal.
3	Pilot out	O	Output of MPX pilot signal (Connect to Pin18)
4	Sepa Adj.	-	Separation adjustment.
5	L out	O	Left channel signal output.
6	L	O	Reversal output of Pin5.
7	R	O	Reversal output of Pin8.
8	R out	O	Right channel signal output.
9	Mute Cont	-	The mute time is controlled by the connected capacitor when turning the power switch on.
10	FM/AM	I	Change over the FM/AM input. "H":AM "L":FM
11	Mute out	-	Non connect.
12	GND	-	Connect to GND
13	Stereo	O	Stereo indicator output. Stereo:"L" Mono:"H"
14	Mute Cont	-	The mute time is controlled by the connected capacitor when changing over the FM/AM.
15	Mute in	I	Mute signal input. "H":Mute on "L":Mute off
16	LPF	-	Low pass filter of pilot detector.
17	LPF	-	While this terminal goes to "H",the VCO stop.
18	Pilot in	I	Pilot input.
19	LPF	-	Low-pass filter of PLL.
20	LPF	-	Low-pass filter of PLL.
21	VCO	I	Voltage controlled oscillator terminal.
22	Vcc	-	Power supply.

■TA8409S(IC802.803):CD Changer Motor Driver

1.Block Diagram

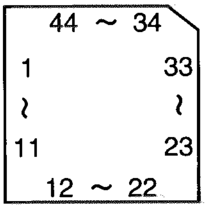

Vcc
2
Vs
6
Vref
8
Standby circuit
IN1
9
IN2
1
OUT1
7
M
3
OUT2
Heat interception
5
GND

2.Function

INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	MOTOR
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

■UPD65612GB-208(IC801):CD Changer Control Micon

1.Trminal Layout



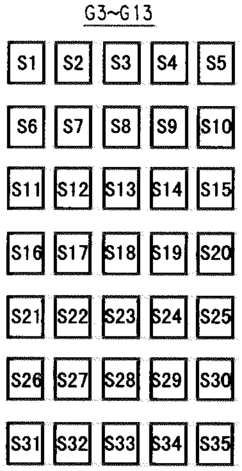
2.Pin Function

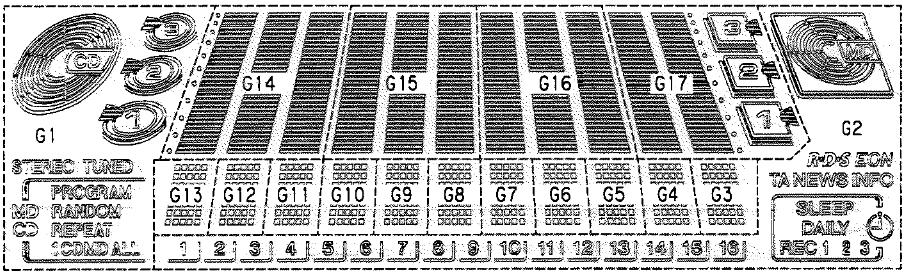
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	NC	-	Non connect	24	1SSW	I	Switch input signal to TRAY 1
2	NC	-	Non connect	25	NC	-	Non connect
3	MSPOSI	-	Non connect	26	CAM0	I	Switch input signal for LCAM
4	OS1I	I	Oscillation input terminal	27	CAM1	I	Switch input signal for LCAM
5	OS1O	O	Oscillation output terminal	28	CAM2	I	Switch input signal for LCAM
6	OS2I	I	Oscillation input terminal	29	CAM3	I	Switch input signal for LCAM
7	OS2O	O	Oscillation output terminal	30	CAM4	I	Switch input signal for RCAM
8	NC	-	Non connect	31	CAM5	I	Switch input signal for RCAM
9	C12IN	I	Connect to C12 OUT terminal	32	CAM6	I	Switch input signal for RCAM
10	C12OUT	O	Connect to C12 IN terminal	33	CAM7	I	Switch input signal for RCAM
11	RESET	I	Reset signal input	34	FIT	I	Connect to C50
12	REQB	O	Mecha.data.request output	35	C50	O	Connect to FIT
13	DATA	I/O	Control.status.data. I/O	36	LMUP	O	Motor control signal for L
14	STCH	I	Strobe signal input	37	LMDWN	O	Motor control signal for L
15	CKS	I	Clock signal input	38	C25	-	Non connect
16	SELECT	-	Connect to ground	39	VDD	-	Power supply
17	GND	-	Connect to ground	40	C100	-	Non connect
18	CK	-	Connect to ground	41	RMUP	O	Motor control signal for R
19	1MSW	I	Switch input signal to TRAY 1	42	RMDWN	O	Motor control signal for R
20	2MSW	I	Switch input signal to TRAY 2	43	NC	-	Non connect
21	3MSW	I	Switch input signal to TRAY 3	44	NC	-	Non connect
22	3SSW	I	Switch input signal to TRAY 3				
23	2SSW	I	Switch input signal to TRAY 2				

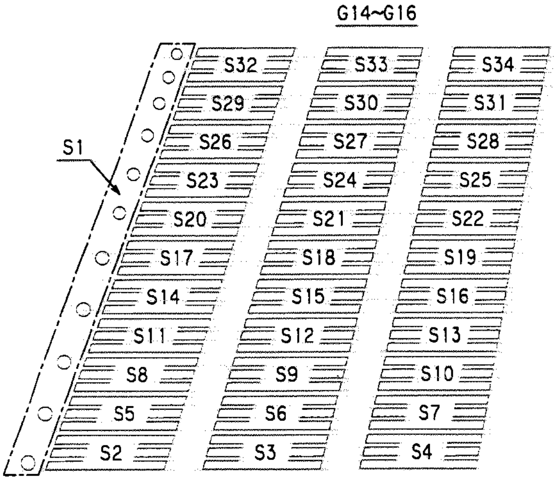
Internal Connections for FL Display Tube

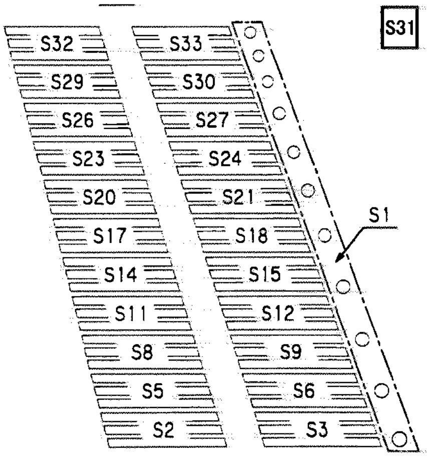
■ QLF0027-001(DI901)

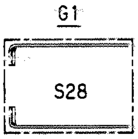
1.Grid & Segmant

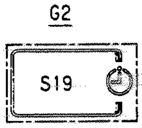

G3~G13
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
S32
S33
S34
S35

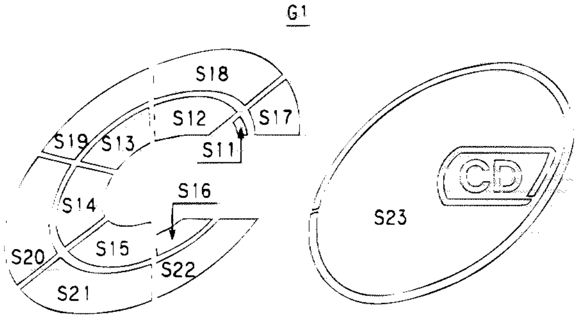

CD
3
2
1
G1
G14
G15
G16
G17
MD
G2
STEREO TUNED
PROGRAM
MD RANDOM
CD REPEAT
1CDMD ALL
G13
G12
G11
G10
G9
G8
G7
G6
G5
G4
G3
R·D·S EON
TA NEWS INFO
SLEEP
DAILY
REC 1 2 3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

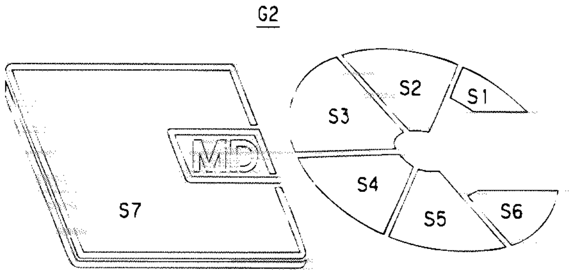

G14~G16
S1
S32
S33
S34
S29
S30
S31
S26
S27
S28
S23
S24
S25
S20
S21
S22
S17
S18
S19
S14
S15
S16
S11
S12
S13
S8
S9
S10
S5
S6
S7
S2
S3
S4

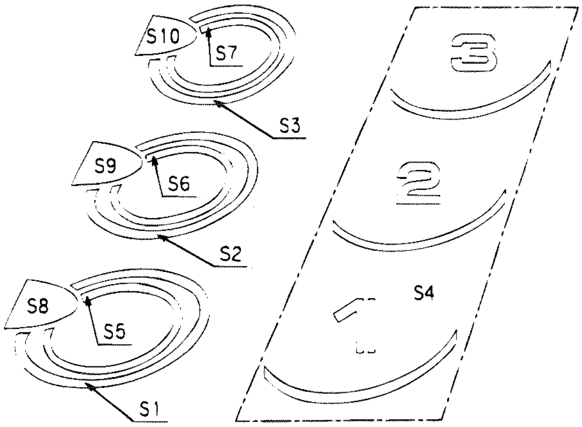

G17
S32
S33
S29
S30
S26
S27
S23
S24
S20
S21
S17
S18
S14
S15
S11
S12
S8
S9
S5
S6
S2
S3
S1

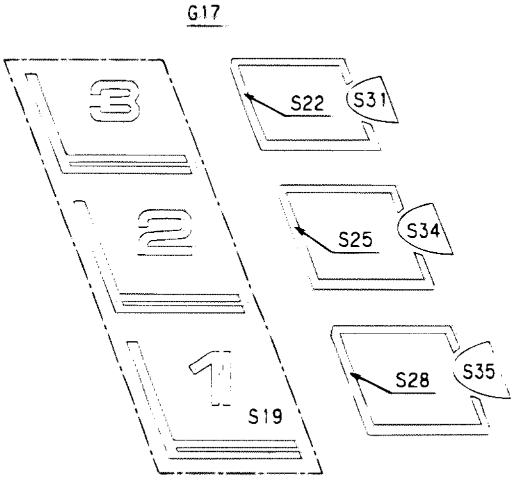





G1
S18
S12
S17
S19
S13
S11
S16
S14
S15
S20
S22
S21
S23
CD


G2
MD
S7
S2
S1
S3
S4
S5
S6


S10
S7
S3
S9
S6
S2
S8
S5
S1
3
2
1
S4


G17
3
2
1
S19
S22
S31
S25
S34
S28
S35

2.Anode connection

	G1	G2	G3~G13	G14	G15,16	G17
S1	S1	S1	S1	S1		S1
S2	S2	S2	S2	S2	S2	S2
S3	S3	S3	S3	S3	S3	S3
S4	S4	S4	S4	S4	S4	
S5	S5	S5	S5	S5	S5	S5
S6	S6	S6	S6	S6	S6	S6
S7	S7	S7	S7	S7	S7	
S8	S8	R·D·S	S8	S8	S8	S8
S9	S9	EON	S9	S9	S9	S9
S10	S10	TA	S10	S10	S10	
S11	S11	NEWS	S11	S11	S11	S11
S12	S12	INFO	S12	S12	S12	S12
S13	S13	SLEEP	S13	S13	S13	
S14	S14	DAILY	S14	S14	S14	S14
S15	S15	REC	S15	S15	S15	S15
S16	S16	(REC)1	S16	S16	S16	
S17	S17	(REC)2	S17	S17	S17	S17
S18	S18	(REC)3	S18	S18	S18	S18
S19	S19	S19	S19	S19	S19	S19
S20	S20	1	S20	S20	S20	S20
S21	S21	2	S21	S21	S21	S21
S22	S22	3	S22	S22	S22	S22
S23	S23	4	S23	S23	S23	S23
S24	STEREO	5	S24	S24	S24	S24
S25	TUNED	6	S25	S25	S25	S25
S26	MD	7	S26	S26	S26	S26
S27	CD	8	S27	S27	S27	S27
S28	S28	9	S28	S28	S28	S28
S29	PROGRAM	10	S29	S29	S29	S29
S30	RANDOM	11	S30	S30	S30	S30
S31	REPEAT	12	S31	S31	S31	S31
S32	1(CDMD)	13	S32	S32	S32	S32
S33	(1)CD(MD)	14	S33	S33	S33	S33
S34	(1CD)MD	15	S34	S34	S34	S34
S35	ALL	16	S35			S35

3.pin connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Assignment	F1	F1	F1	NP	IC	G13	G12	G11	G10	G9	G8	G7	G6	G5	G4	G3	NL	NL	NL	S35	S34	S33

Pin No.	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	8	39	40	41	42	43
Assignment	S32	S31	S30	S29	S28	S27	S26	S25	S24	S23	S22	S21	S20	S19	H	NL	NL	NP	F2	F2	F2

Pin No.	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
Assignment	F2	F2	F2	NP	NL	NL	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3

Pin No.	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Assignment	S2	S1	NC	NL	NL	NL	NL	NL	NL	G2	G1	G17	G16	G15	G14	IC	D	NP	F1	F1	F1

Disassembly Procedures

(1)Top cover removal

1.Remove two screws A on both sides of the top cover and six screws B on the rear side. (See Fig.1,2)

2.Lift the back of the top cover spreading both sides to remove.

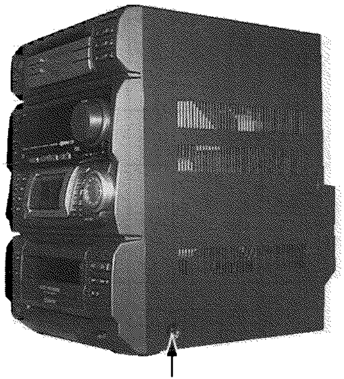


Fig 1

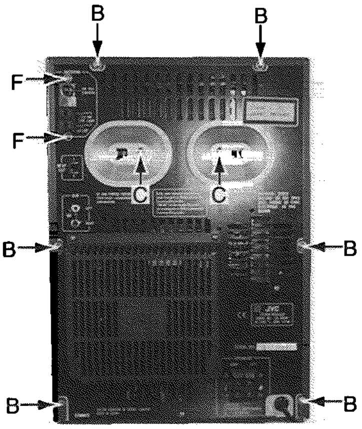


Fig 2

(2)CD Changer mechanism assembly removal

1.Remove the top cover.

2.Remove two screws C on the rear side and two screws D on the upper surface. (See Fig.2,3)

3.Remove screw E on the right side. (See Fig.4)

4.Three flat wires are removed from CD changer mechanism assembly. (CN713.CN811.CN614) (See Fig.4)

5.Remove two screws F on the rear surface of TUNER P.C.Board fixation. (See Fig.2)

6.Disconnect the connector CN114 of the TUNER P.C.Board.(See Fig.4)

7.Lift the rear side of the CD changer mechanism assembly.

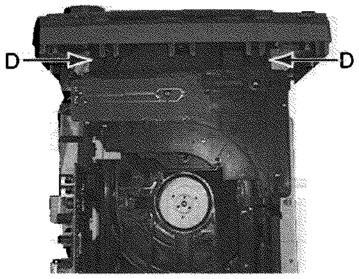


Fig 3

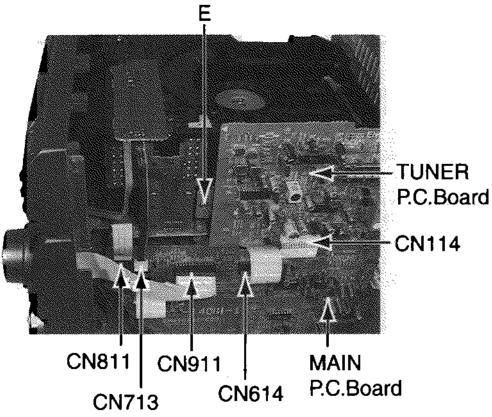


Fig 4

(3)Front panel assembly removal

1.Remove the top cover.

2.Remove the CD changer mechanism assembly.

3.Disconnect the flat wires on the front P.C.Board and cassette mechanism assembly. (CN902.CN911.CN504) (See Fig.5)

4.Disconnect the connect P.C.Board CN052 on the AMP.P.C.Board. (See Fig.6)

5.Remove three screws G of the bottom and two screws H of both sides (See Fig.7.5)

6.Remove the front panel while removing the hook of the bottom and the both sides. (See Fig.7.5)

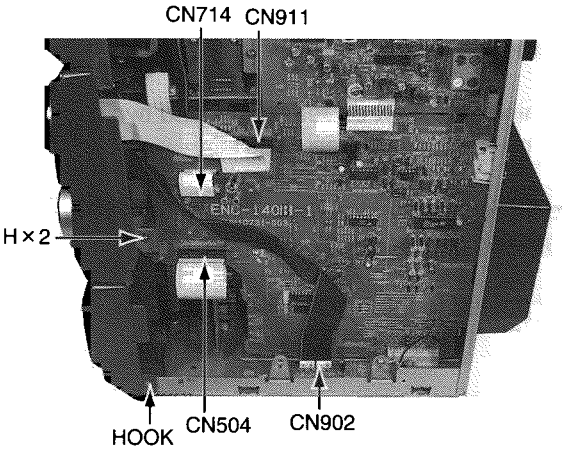

CN714
CN911
H×2
HOOK
CN504
CN902

Fig 5

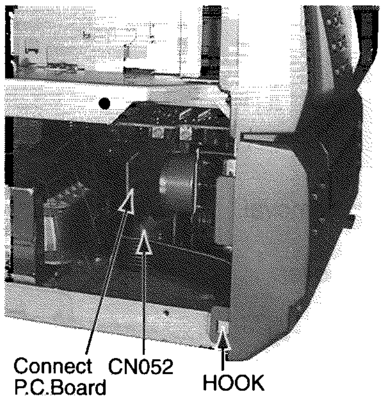

Connect P.C.Board
CN052
HOOK

Fig 6

(4)MD changer mechanism assembly removal

1.Remove the top cover.

2.Remove the CD changer mechanism assembly.

3.Remove the front panel assembly.

4.Remove four screws I and one screw J on the MD changer mechanism assembly. (See Fig.8)

5.Remove mechanism bracket.

6.A flat wire CN714 is removed and MD changer mechanism assembly is removed.(See Fig.5)

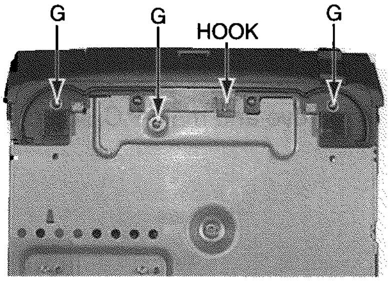


Fig 7

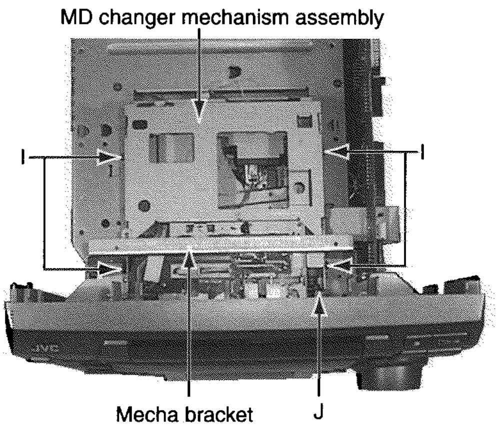

MD changer mechanism assembly
I
I
Mecha bracket
J

Fig 8

(5)Rear panel removal

1.Remove the top cover.

2.Remove nine screws K on rear panel and two screws L on rear cover. (See Fig.9)

3.Remove three screws M on heat sink and mecha plate fastening in rear panel. (See Fig.10)

4.The tape pasted to the heat sink is peeled off. (See Fig.10)

5.Both sides hook remove and rear panel is removed. (See Fig.10)

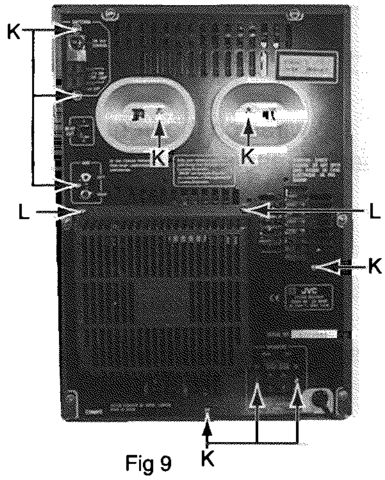


Fig 9

(6)Main P.C.Board removal.

1.Remove the top cover.

2.Remove the rear panel.

3.Disconnect the connectors and flat wires. (See Fig.11) (CN811.CN713.CN911.CN614.CN114.CN714.CN504)

4.The connector CN711 is extracted from power supply P.C.Board. (See Fig.11)

5.One screw N is remove and main P.C.Board is removed. (See Fig.11)

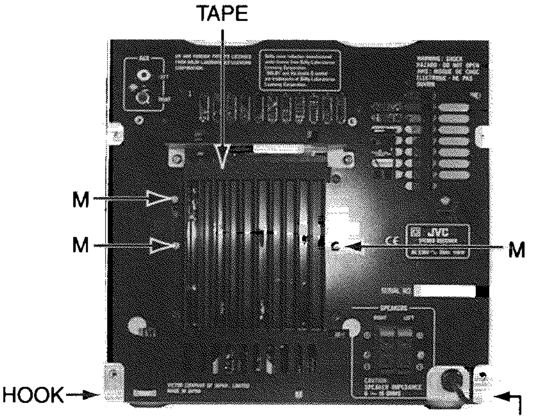

TAPE
M
M
M
HOOK
HOOK

Fig 10

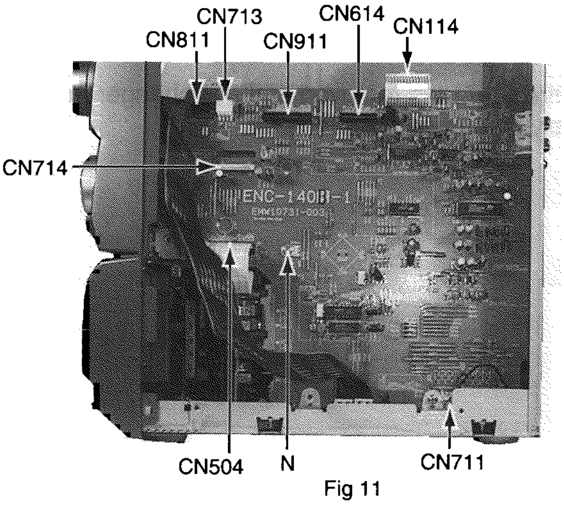

CN713
CN614
CN114
CN811
CN911
CN714
CN504
N
CN711

Fig 11

(7)Cassette mechanism assembly removal

1.Remove the top cover and front panel assembly.

2.Remove four screws O on the cassette mechanism assembly. (See Fig.12)

(8)Front P.C.Board assembly removal

1.Remove the top cover and front panel assembly.

2.Remove the cassette mechanism assembly.

3.Remove ten screws P on the front bracket. (See Fig.13)

4.Remove sixteen screws Q on the front P.C.Board. (See Fig.12)

5.Remove the master volume knob, NUT and jog dial knob.

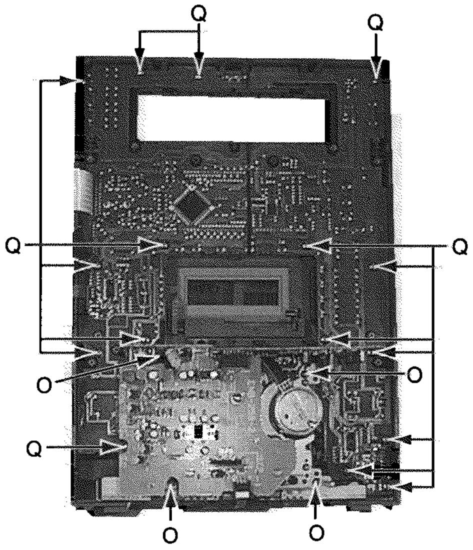


Fig 12

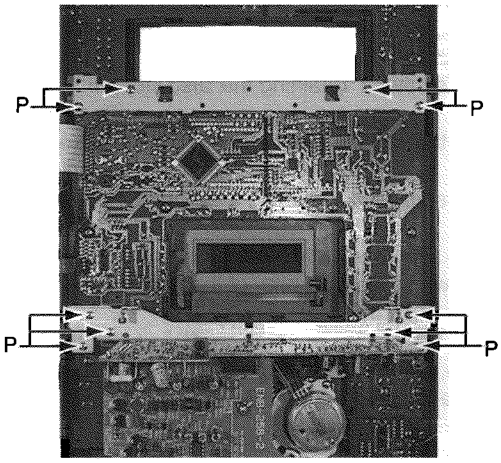


Fig 13

≪CD Traverse Mechanism Type:C3CN Section≫

■Removing the CD Servo control board (See Fig.1)

1. Remove the Metal cover.
2. Remove the CD Traverse mechanism assembly.
3. From bottom side the CD Traverse mechanism assembly, remove the one screw 1 retaining the CD Servo control board.
4. From the connectors CN601, CN603, CN604 on the CD Servo control board, diconnect the card wire, from the connector CN602, disconnect the six pin connector wire.
5. Disengage the two engagements "A" , remove the CD Servo control board.

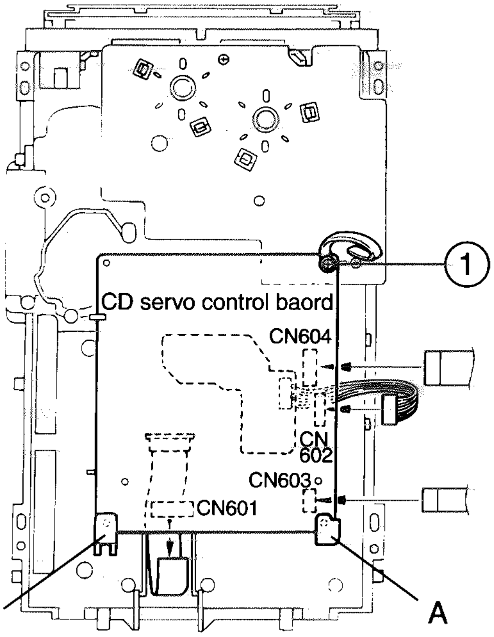

①
CD servo control baord
CN604
CN
602
CN603
CN601
A
A

Fig.1

■Removing the CD tray assembly (See Fig.2~4)

1. Remove the front panel assembly.
2. Remove the CD Traverse mechanism assembly.
3. Remove the CD Servo control board.
4. From the T.bracket section "B" and clamper base section "C" , remove both of the edges fixing the rod(See Fig.2 and 3).
5. Remove the screw 2 retaining the Disc stopper (See Fig.3).
6. Remove the three screws 3 retaining the T.bracket (See Fig.3).
7. Remove the screws 4 retaining the clamper assembly (See Fig.3).
8. From the left side face of the chassis assembly, remove the one screw 5 retaining both of the return spring and lock lever(See Fig. 4).
9. By removing the pawl at the section "D" fixing the return spring, dismount the return spring(See Fig.4).
10. Remove the three lock levers(See Fig.4).

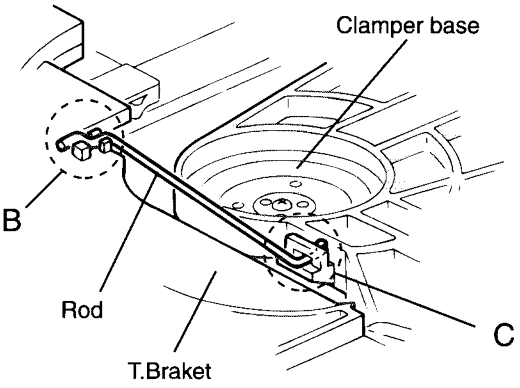

Clamper base
B
Rod
C
T.Braket

Fig.2

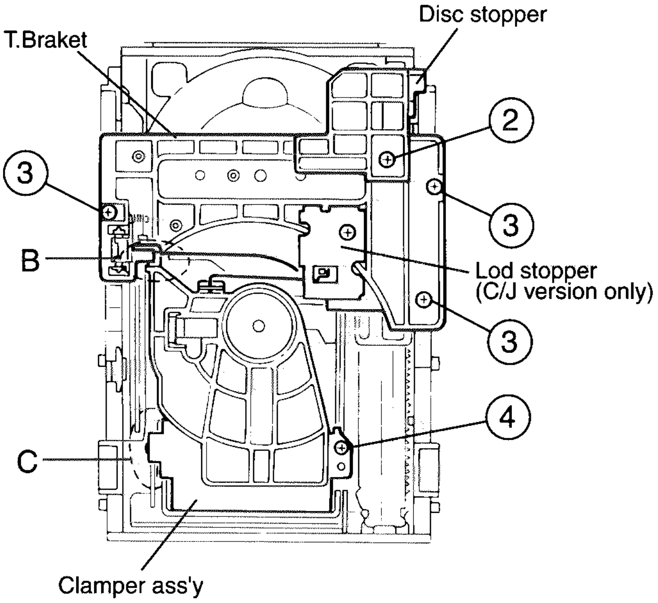

Disc stopper
T.Braket
③
②
③
B
Lod stopper
(C/J version only)
③
④
C
Clamper ass'y

Fig.3

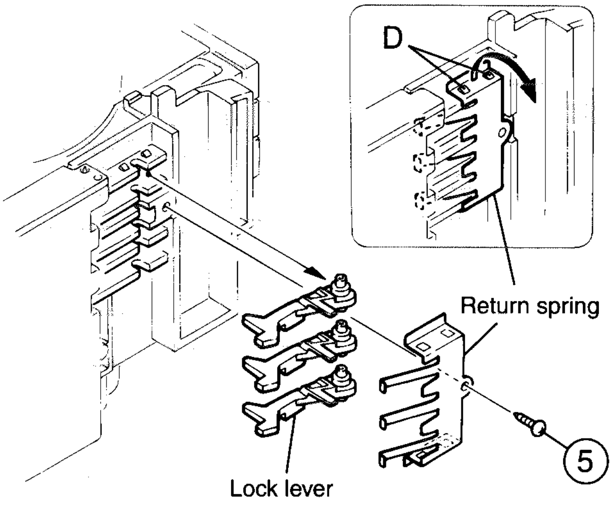

D
Return spring
⑤
Lock lever

Fig.4

11. Check whether the lifter unit stopper has been caught into the hole at the section "E" of CD tray assembly as shown in Fig.5.
12. Make sure that the driver unit elevator is positioned as shown in Fig.6 from to the second or fifth hole on the left side face of the CD Traverse mechanism assembly.

[Caution] In case the driver unit elevator is not at above position, set the elevator to the position as shown in Fig.7 by manually turning the pulley gear as shown in Fig.8.

13. Manually turn the motor pulley in the clockwise direction until the lifter unit stopper is lowered from the section "E" of CD tray assembly(See Fig.8).
14. Pull out all of the three stages of CD tray assembly in the arrow direction "F" until these stages stop (See Fig.6).
15. At the position where the CD tray assembly has stoppend, pull out the CD tray assembly while pressing the two pawls "G and G" on the back side of CD tray assembly(See Fig.9). In this case, it is easy to pull out the assembly when it is pulled out first from the stage CD tray assembly.

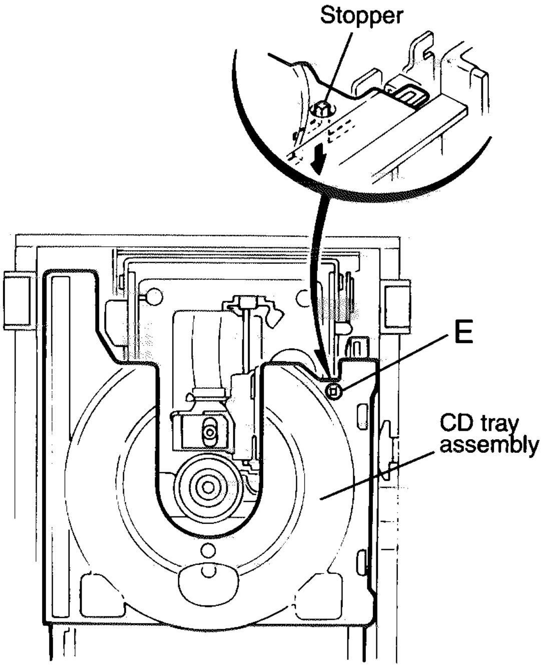

Stopper
E
CD tray assembly

Fig.5

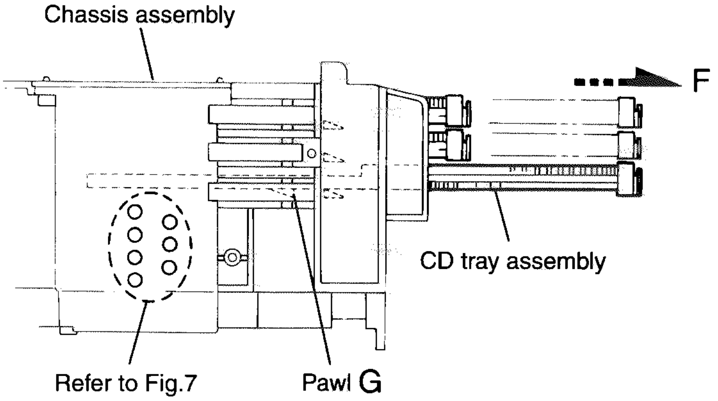

Chassis assembly
F
CD tray assembly
Refer to Fig.7
Pawl G

Fig.6

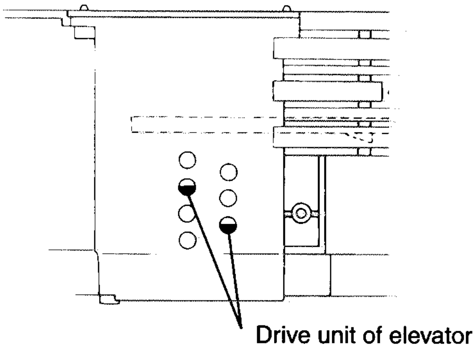

Drive unit of elevator

Fig.7

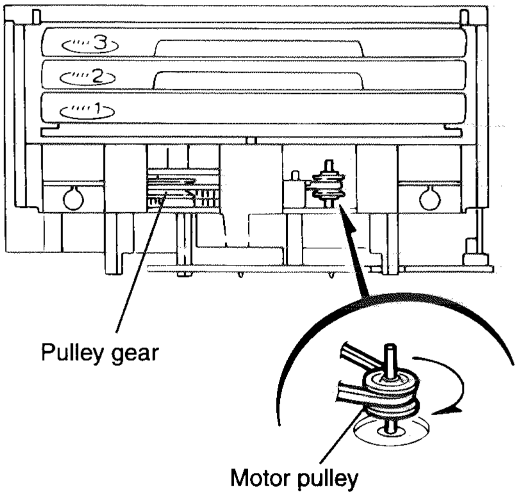

3
2
1
Pulley gear
Motor pulley

Fig.8

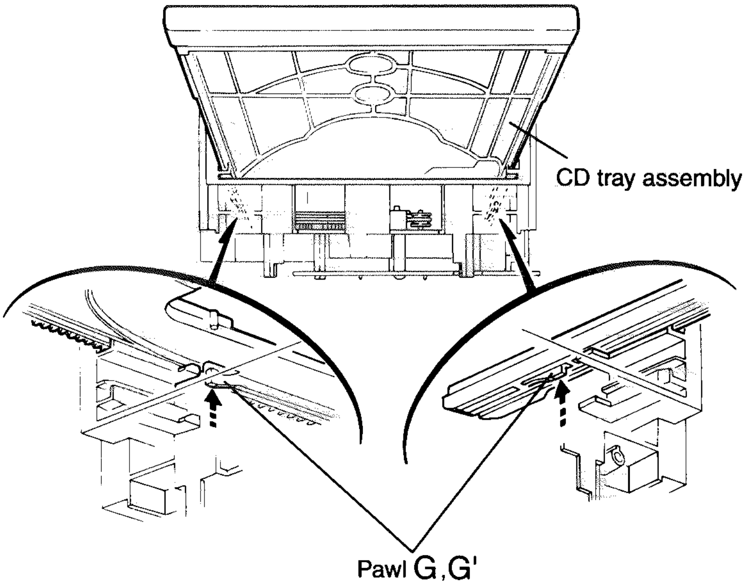

CD tray assembly
Pawl G,G'

Fig.9

■Removing the CD mechanism assembly(See Fig.10)

1. While turning the cams R1 and R2 assembly in the arrow direction "H" , align the shaft "I" of the CD mechanism assembly to the position shown in Fig.10.
2. Remove the four screw 6 retaining the CD mechanism assembly.

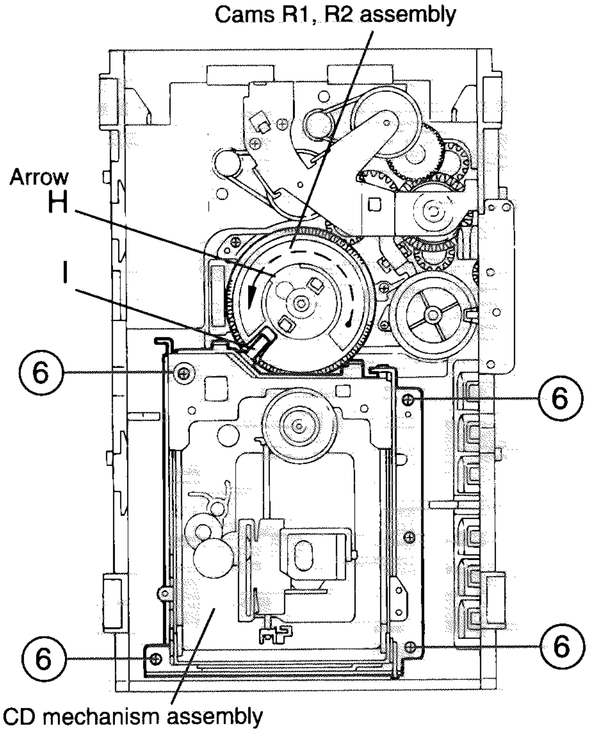

Cams R1, R2 assembly
Arrow H
I
6
6
6
6
CD mechanism assembly

Fig.10

■Removing the CD mechanism (See Fig.11 and 12)

1. For dismounting only the CD machanism without removing the CD mechanism assembly, align the shaft "J" of the CD mechanism assembly to the position shown Fig.11 while turning the cam R1 and R2 assembly in the arrow direction "K" .
2. By raising the CD mechanism assembly in the arrow direction "L" , remove the assembly from the lifter unit (See Fig.12).

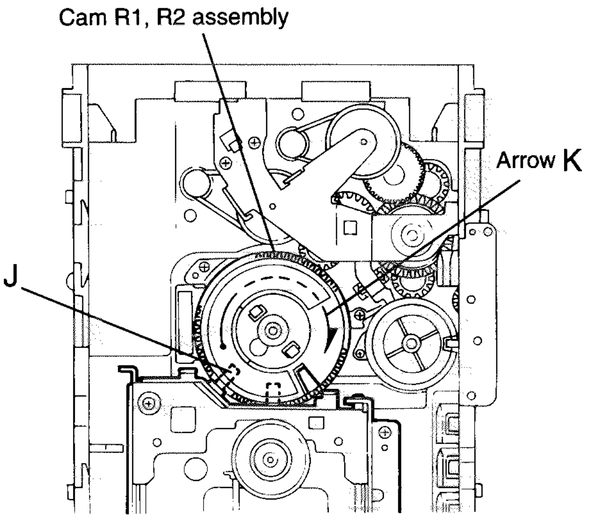

Cam R1, R2 assembly
Arrow K
J

Fig.11

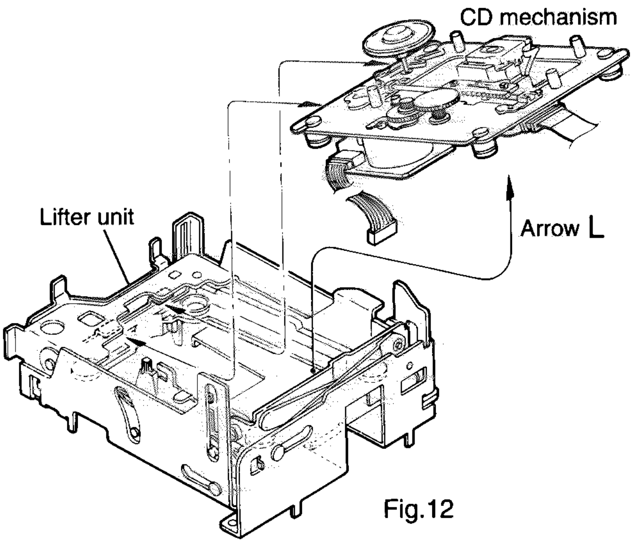

CD mechanism
Lifter unit
Arrow L

Fig.12

■Removing the CD pick unit (See Fig.13)

1. Move the cam gear in the arrow direction a . Then, the CD pickup unit will be moved in the arrow direction b .
2. According to the above step, shift the CD pickup unit to the center positior.
3. While pressing the stopper retaining the shaft in the arrow direction c , pull out the shaft in the arrow direction d .
4. After dismounting the shaft from the CD pickup unit, remove the CD pickup unit

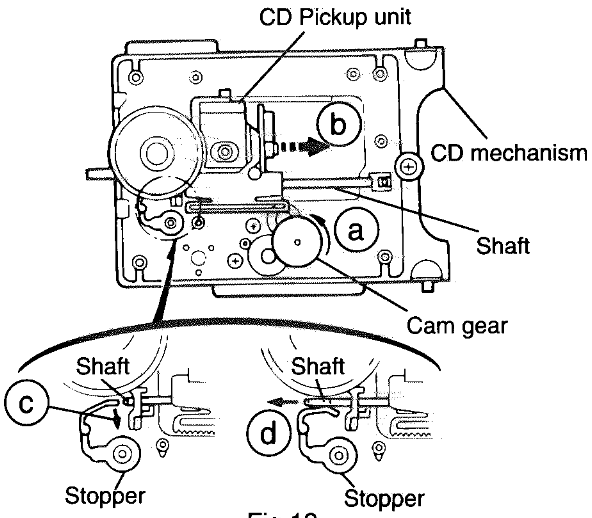

CD Pickup unit
b
CD mechanism
a
Shaft
Cam gear
Shaft
Shaft
c
d
Stopper
Stopper

Fig.13

■Removing the actuator motor boad (See Fig.14, 15)

1. Absord the four soldered positions "M" of the right and left motors with a soldering absorber(See Fig.14).
2. Remove the two screws 7 retaining the actuator motor board(See Fig.14).
3. Remove the two screws 8 retaining the tray select switch board(See Fig.15).

■Removing the can unit (See Fig.15 ~18)

1. Remove the CD mechanism assembly.
2. While turning the cam gear L, align the pawl "N" position of the drive unit to the notch position(Fig.15) on the cam gear L.
3. Pull out the drive unit and cylinder gear(See Fig.17).
4. While turning the cam gear L, align the pawl "O" position of the select lever to the notch position(Fig.18) on the cam gear L.
5. Remove the four screws 9 retaining the cam unit(cam gear L and cams R1/R2 assembly)(See Fig.18).

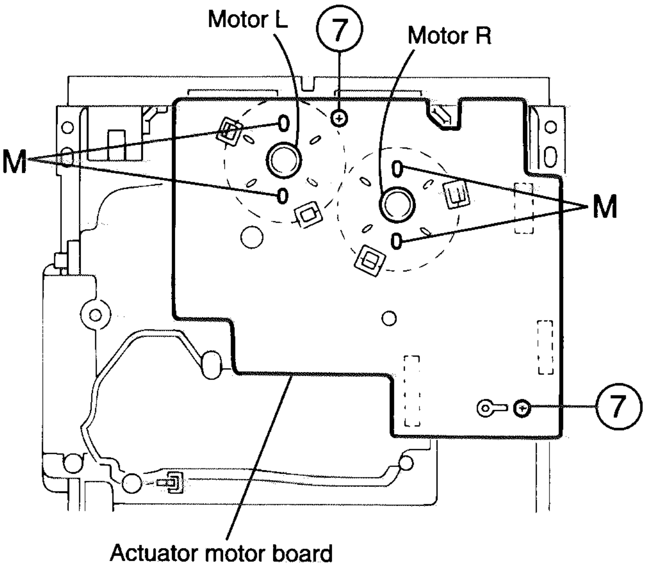

Motor L
⑦
Motor R
M
M
⑦
Actuator motor board

Fig.14

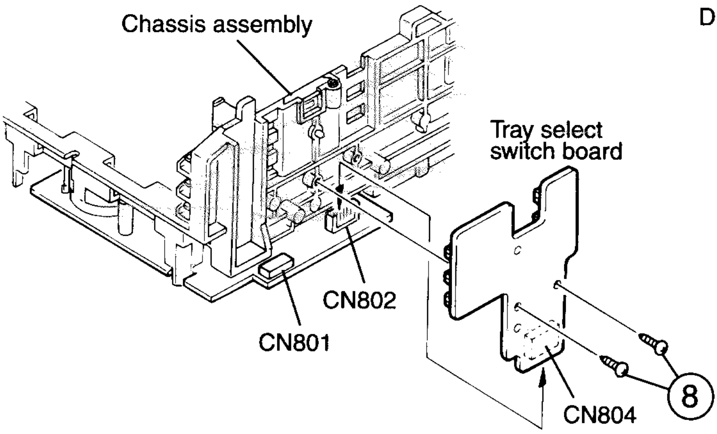

Chassis assembly
Tray select switch board
CN802
CN801
CN804
⑧

Fig.15

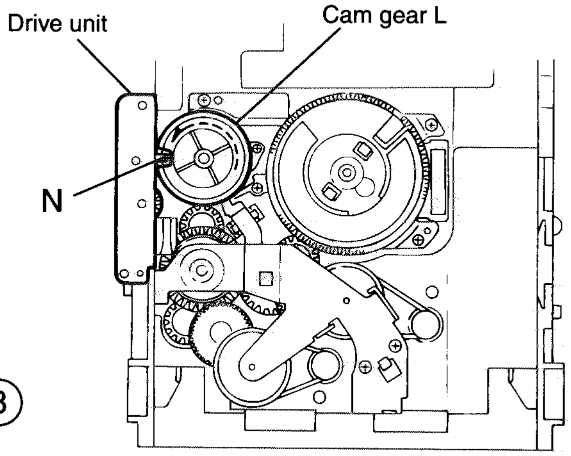

Drive unit
Cam gear L
N

Fig.16

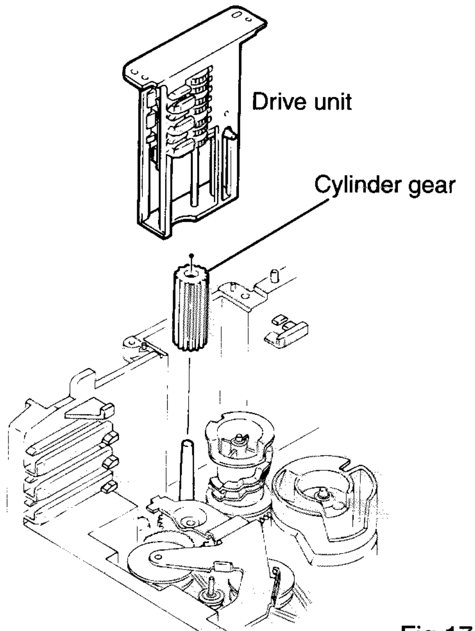

Drive unit
Cylinder gear

Fig.17

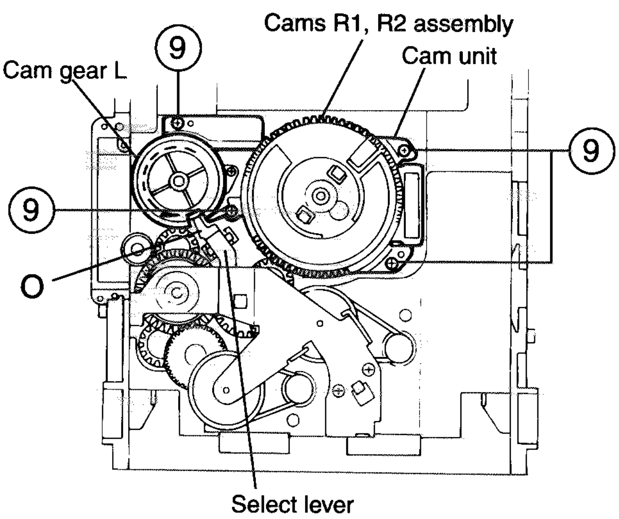

Cams R1, R2 assembly
Cam unit
Cam gear L
⑨
⑨
⑨
O
Select lever

Fig.18

■Removing the actuator motor and belt (See Fig.19~22)

1. Remove the two screws 10 retaining the gear bracket (See Fig.19).
2. While pressing the pawl "P" fixing the gear bracket in the arrow direction, remove the gear bracket (See Fig.19).
3. From the notch "Q section" on the chassis assembly fixing the edge of gear bracket, remove and take out the gear bracket(See Fig. 20).
4. Remove the belts respectively from the right and left actuator motor pulleys and pulley gears(See Fig. 19).
5. After turning over the chassis assembly, remove the actuator motor while spreading the four pawls "R" fixing the right and left actuator motors in the arrow direction(See Fig. 21).

[Note] When the chassis assembly is turned over under the conditions wherein the gear bracket and belt have been removed, then the pulley gear as well as the gear, etc. constituting the gear unit can possibly be separated to pieces. In such a case, assemble these parts by referring to the assembly and configuration diagram in Fig. 22.

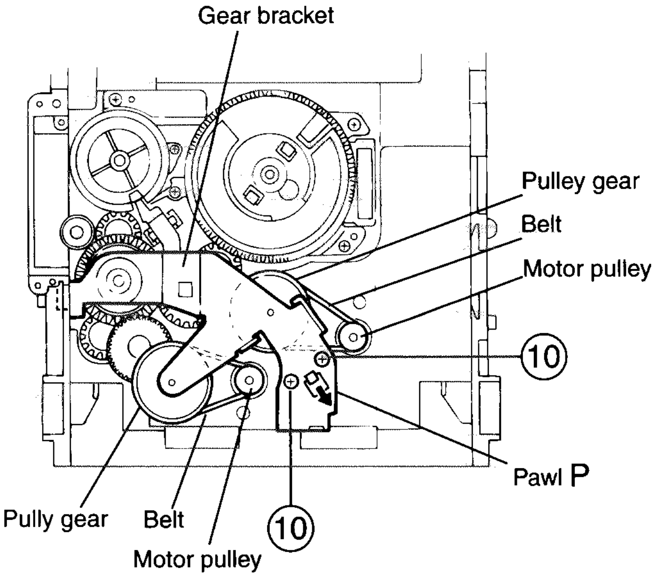

Gear bracket
Pulley gear
Belt
Motor pulley
⑩
Pawl P
Pully gear
Belt
⑩
Motor pulley

Fig.19

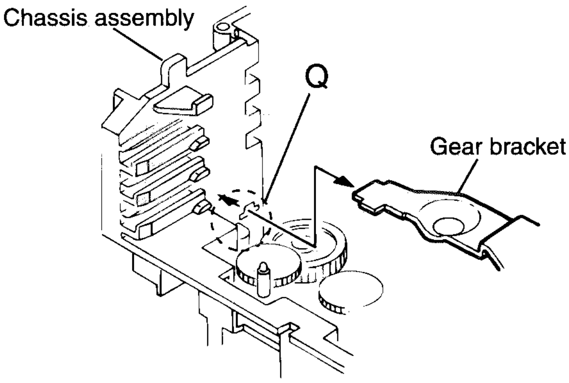

Chassis assembly
Q
Gear bracket

Fig.20

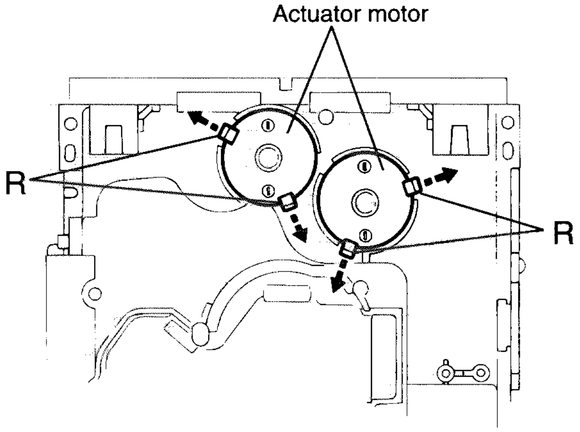

Actuator motor
R
R

Fig.21

Assembly and Configuration Diagram

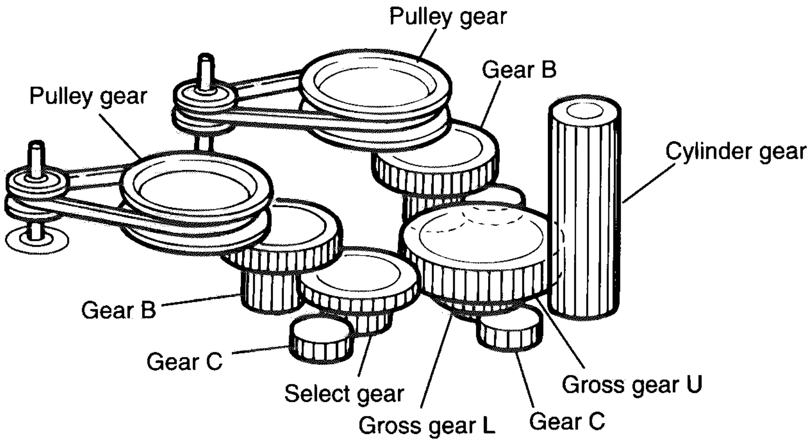

Pulley gear
Gear B
Pulley gear
Cylinder gear
Gear B
Gear C
Select gear
Gross gear L
Gear C
Gross gear U

Fig.22

■Removing the cams R1/R2 assembly and cam gear L(See Fig.23)

1. Remove the slit washer fixing the cams R1 and R2 assembly.
2. By removing the two pawls "S" fixing the cam R1, separate R2 from R1.
3. Remove the slit washer fixing the cam gear L.
4. Pull out the cam gear L from the C.G. base assembly.

■Removing the C.G. base assembly (See Fig.23 and 24)

Remove the three screws 11 retaining the C.G. base assembly.

[Caution] To retassemble the cylinder gear, etc.with the cam unit (cam gear and cans R1/R2 assembly), gear unit and drive unit, align the position of the pawl "N" on the drive unit to that o f the notch on the cam gear L. Then, make sure that the gear unit is engaged by turning the cam gear L (See Fig. 24).

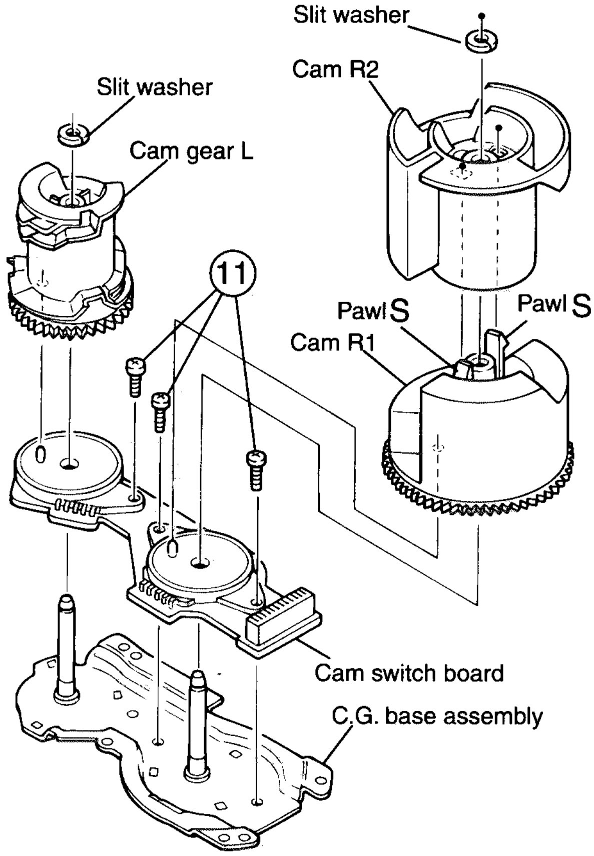

Slit washer
Cam R2
Slit washer
Cam gear L
⑪
Pawl S
Pawl S
Cam R1
Cam switch board
C.G. base assembly

Fig.23

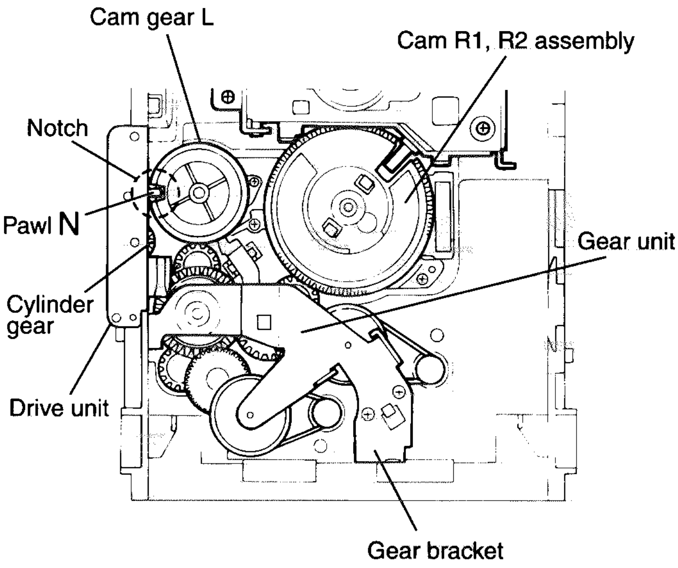

Cam gear L
Cam R1, R2 assembly
Notch
Pawl N
Gear unit
Cylinder gear
Drive unit
Gear bracket

Fig.24

≪Removal of parts for the MD changer mechanism≫

■Removing the Main board

(see Fig.1 and Fig.2)

1. Disconnect wires from connectors CN402, CN408, CN403 and CN321.
   CAUTION - Before disconnecting the flexible wire from CN321, solder the wire on the Pickup assembly to prevent damage caused by static electricity.
2. Remove the two screws 1attaching the Main board.
3. Lift the Main board to disconnect connectors CN418 and CN410 in the base of the Main board. Then, move the Main board to the front to release the two joint (a)s.

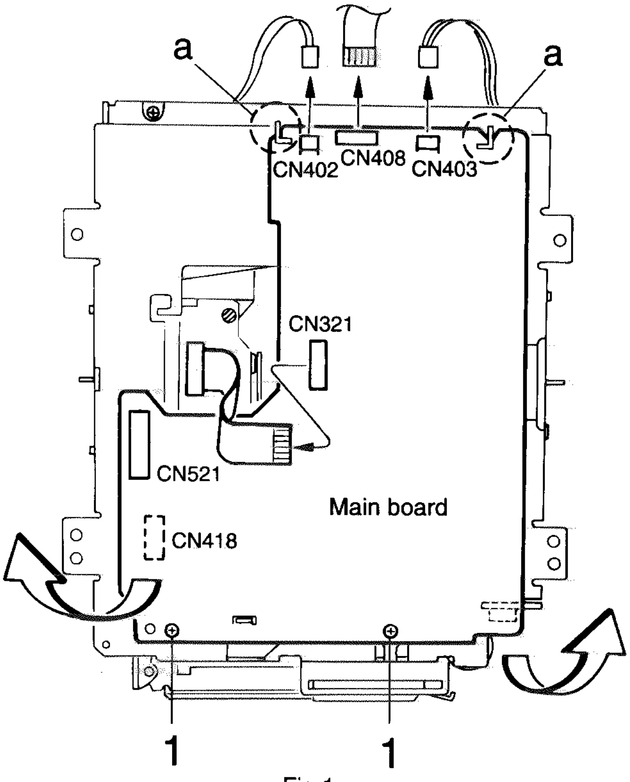

a
a
CN402
CN408
CN403
CN321
CN521
Main board
CN418
1
1

Fig.1

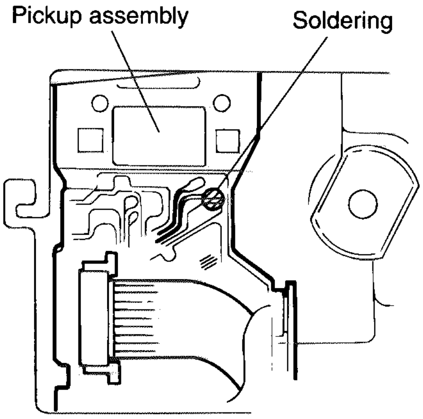

Pickup assembly
Soldering

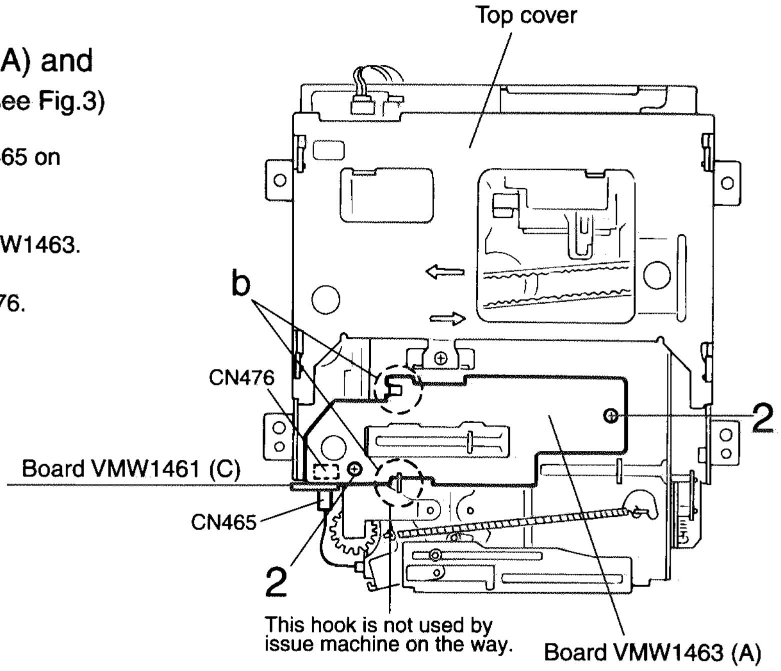
Fig.2

■Removing the Boards VMW1463(A) and VMW1461(C)

(see Fig.3)

1. Disconnect the card wire from connector CN465 on Board VMW1461.
2. Remove the two screws 2attaching Board VMW1463.
3. Remove the each board from connector CN476.

* Each board can be removed separately.


Top cover
b
CN476
2
Board VMW1461 (C)
CN465
2
Board VMW1463 (A)

This hook is not used by issue machine on the way.

Fig.3

■Removing the Top cover (see Fig.4)

1. Remove the three screws 3attaching the Top cover.
2. After moving the Top cover to the front to release the four joint(c)s, remove the Top cover from the chassis.

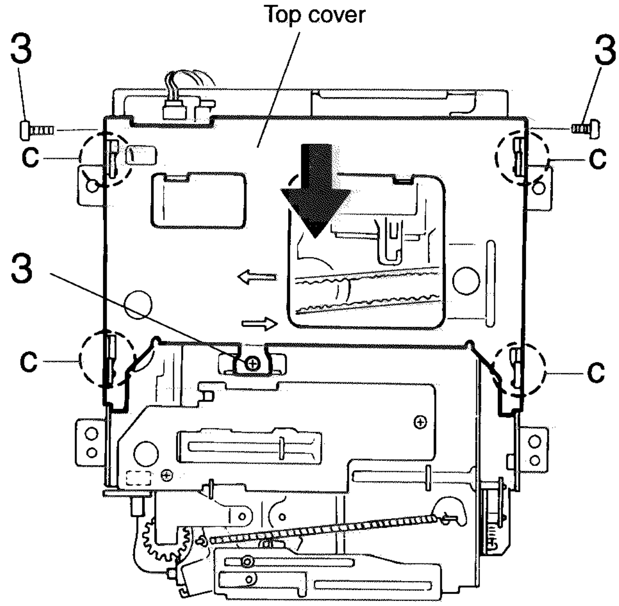


Fig.4

■ Removing the Stocker assembly (see Fig.5 and 6)

1. Remove the two screws 4attaching the Stocker assembly.
2. Lift the front side of the Stocker assembly to release the two joint (d)s at the base.
   Then, remove the assembly upward.

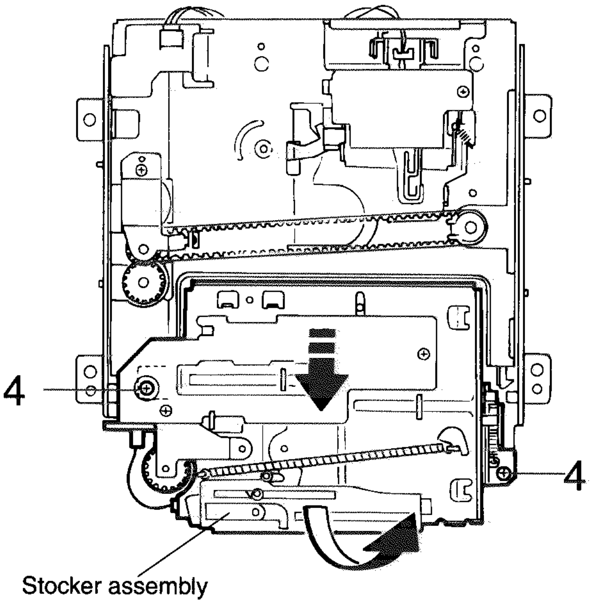


Fig.5

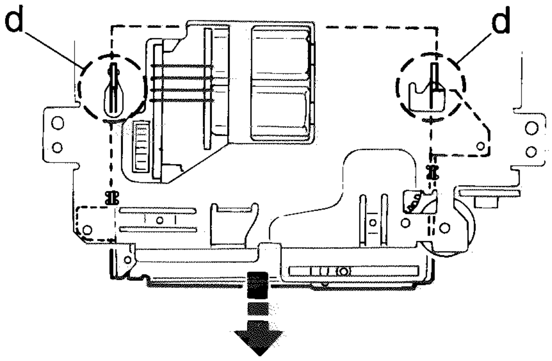


Fig.6

■Removing the Elevator assembly

(see Fig.7 and 8)

1. Disconnect the wire connecting the Elevator assembly with the Main board.
   CAUTION - Before disconnecting the flexible wire from connector CN321, make sure to solder the wire on the Pickup assembly (see Fig.1 and 2).

2. Turn the W wheel in the direction of the arrow to raise the Elevator assembly(see Fig.7) and allow Stud(e) to reach the top of the groove(see Fig.8).

3. Lift the left side of the Elevator assembly to remove from the chassis.

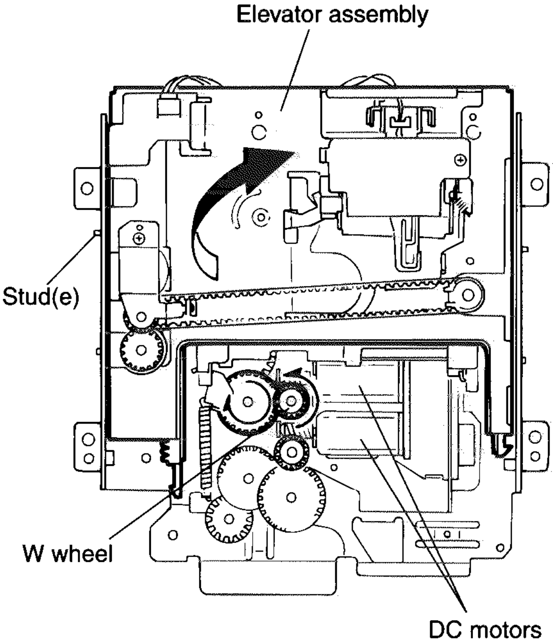

Elevator assembly
Stud(e)
W wheel
DC motors

Fig.7

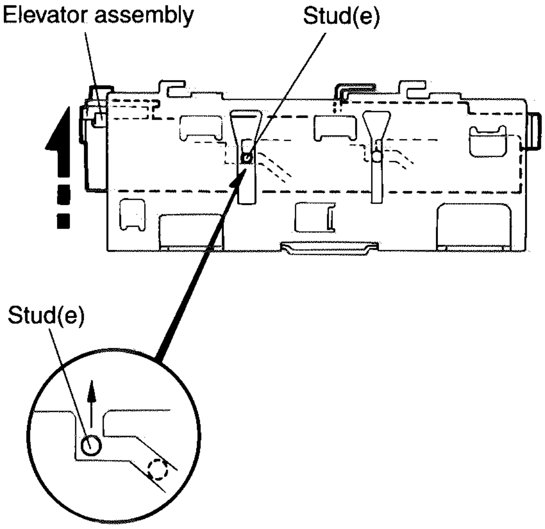

Elevator assembly
Stud(e)
Stud(e)

Fig.8

■Removing the Magnetic head

(see Fig.9 and 10)

1. Remove the one screw 5and detach the Head cover.

2. Remove the Head spring and detach the Magnetic head from the Head joint assembly.

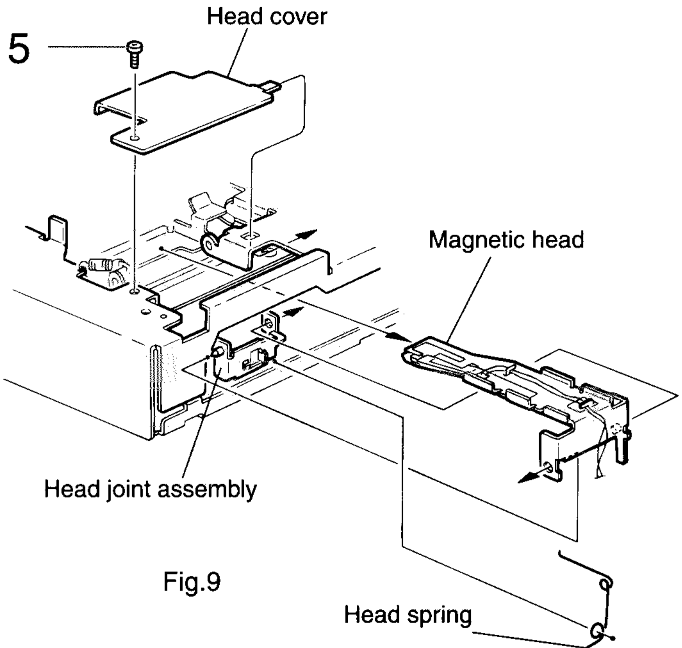

Head cover
5
Magnetic head
Head joint assembly
Head spring

Fig.9

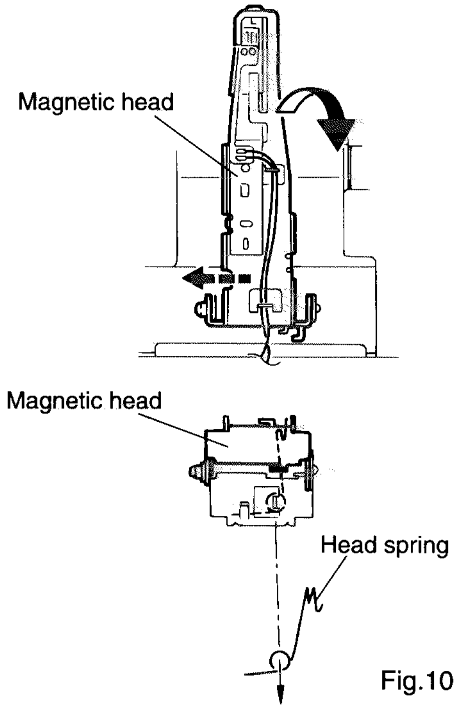

Magnetic head
Magnetic head
Head spring

Fig.10

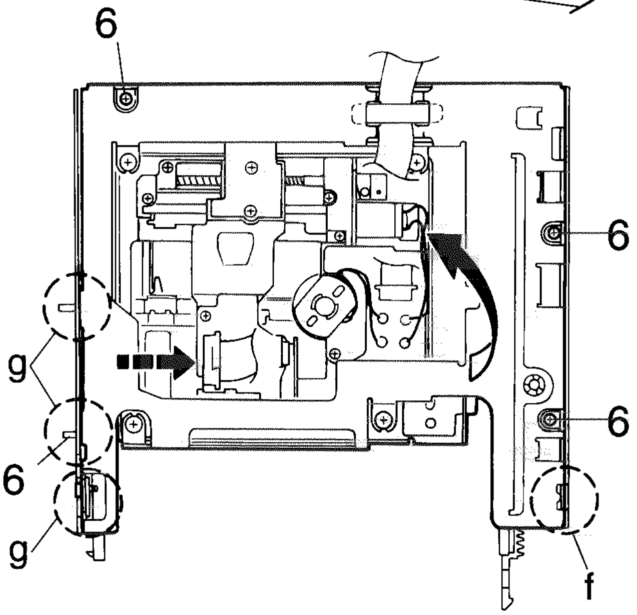


Fig.11

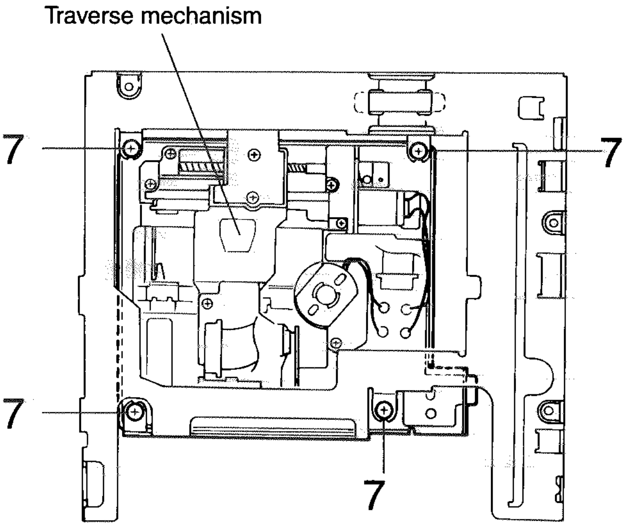

Traverse mechanism
7
7
7
7

Fig.12

■Removing the Traverse mechanism

(see Fig.11 -14)

1. Remove the Magnetic head.

2. Remove the four screws 6 attaching the Traverse mechanism mounting assembly. Lift the assembly to release the joint (f) (see Fig.14), and move it in the direction of the arrows (see Fig.11) to release the joint(g) (see Fig.11,13 and 14).

3. Remove the four screws 7 and detach the Traverse mechanism.

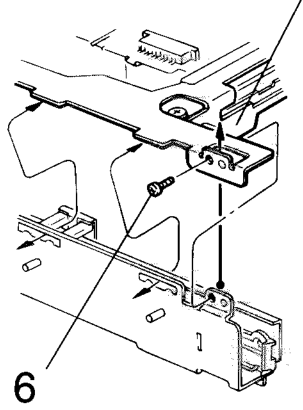

Traverse mechanism mounting assembly
6

Fig.13

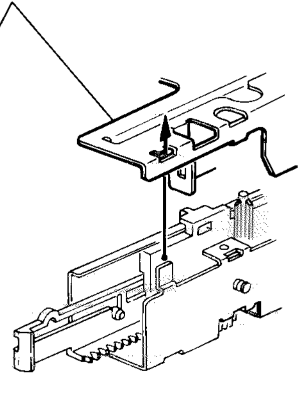


Fig.14

■Removing the Elevator assembly

(see Fig.15-17)

1. Remove the one screw 8 in the base to detach the Timing gear bracket.
2. Draw Timing gear (L) to remove the Timing belt.
3. Remove Gear W3 and the slit washer attaching Gear W4 prior to removing Gear W4.

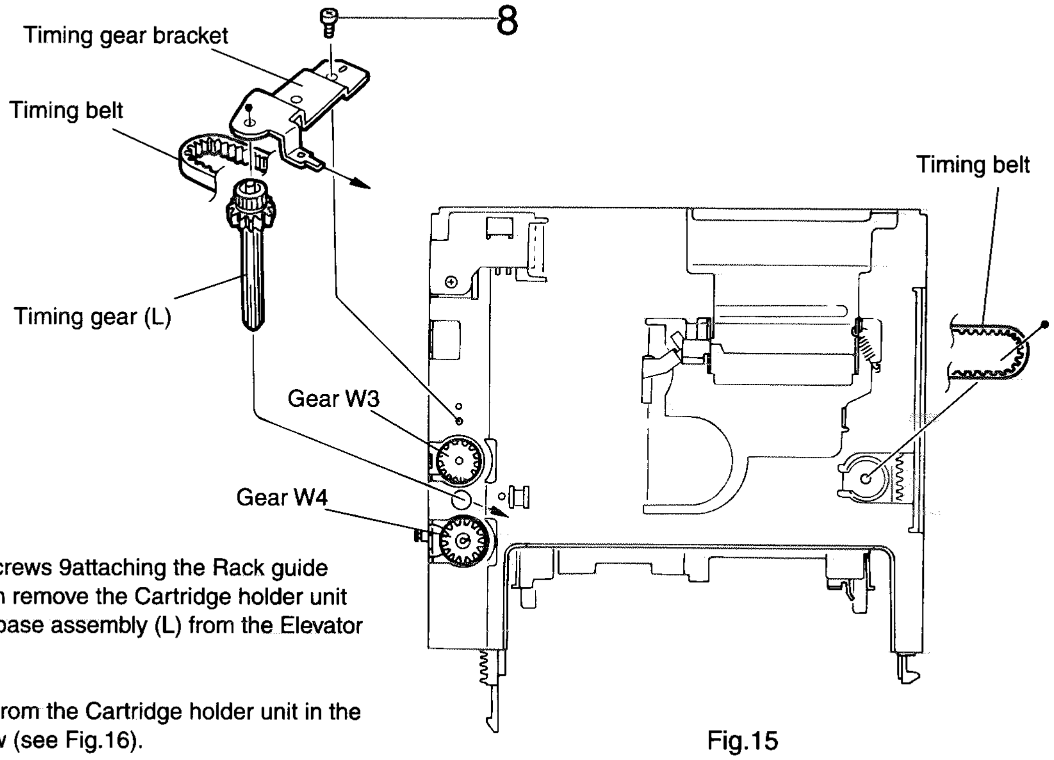

8
Timing gear bracket
Timing belt
Timing belt
Timing gear (L)
Gear W3
Gear W4

Fig.15

4. Remove the three screws 9attaching the Rack guide base assembly. Then remove the Cartridge holder unit and the Rack guide base assembly (L) from the Elevator base assembly.
5. Draw the Hook unit from the Cartridge holder unit in the direction of the arrow (see Fig.16).
6. After removing the two screws A attaching the Rack guide base assembly, remove the Rack guide base assembly(R) from the Elevator base assembly.
7. Remove Timing gear (R) and two Gear W3s.

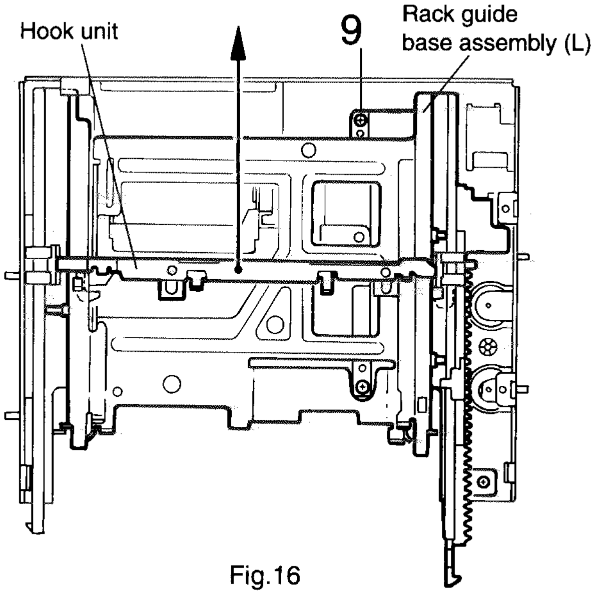

Hook unit
9
Rack guide base assembly (L)

Fig.16

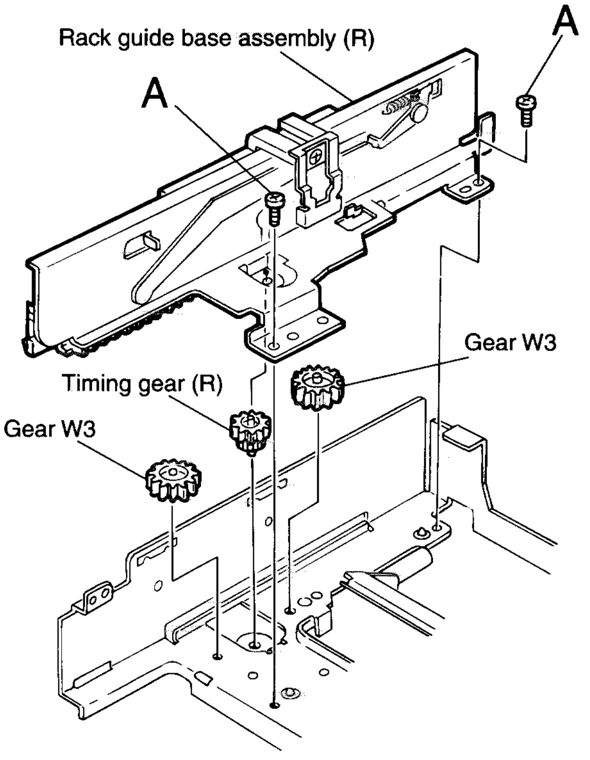

Rack guide base assembly (R)
A
A
Gear W3
Timing gear (R)
Gear W3

Fig.17

〔Assembling the Elevator assembly〕

(see Fig.18-22)

- Insert the Hook unit into the Cartridge holder unit along the rail (see Fig.18) until the Hook unit is locked.
- Draw the racks of Rack guide base assemblies (L) and (R)(See Fig.19 and 20).
- Move the lever in the direction of the arrow (see Fig.19).
- Insert the studs on the side of the Cartridge holder unit into the suitable holes of the Rack guide base assemblies (L) and (R) (see Fig.21 and 22) to attach the Cartridge holder unit to the Rack guide base assemblies (L) and (R)
- Insert the both ends of the Hood unit into the Hood brackets (see Fig.21 and 22).

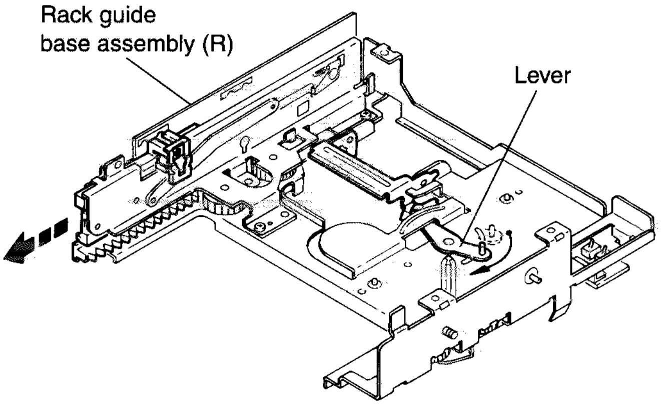

Rack guide
base assembly (R)
Lever

Fig.19

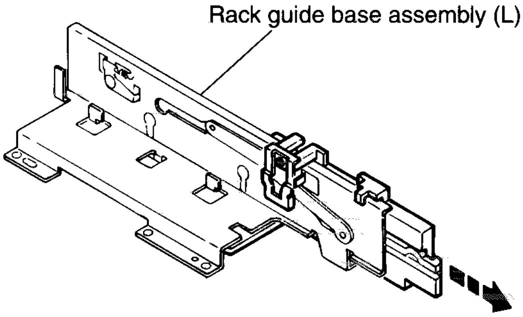

Rack guide base assembly (L)

Fig.20

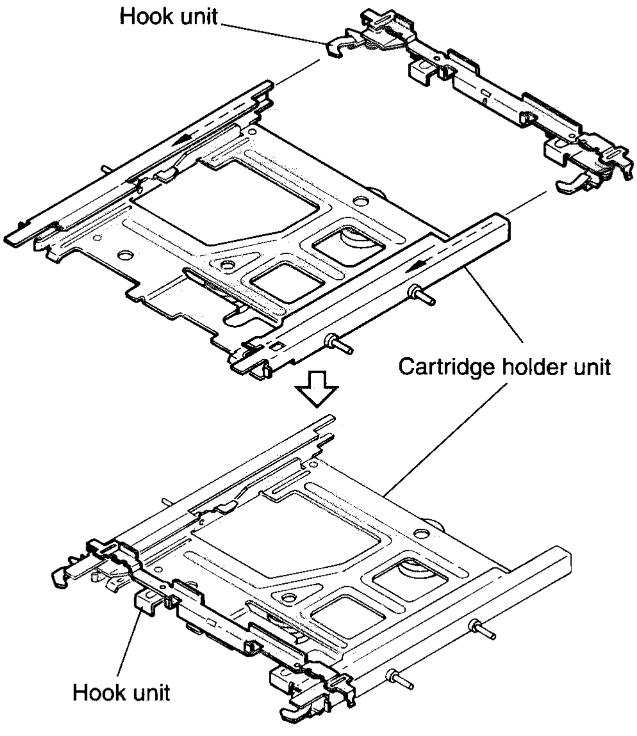

Hook unit
Cartridge holder unit
Hook unit

Fig.18

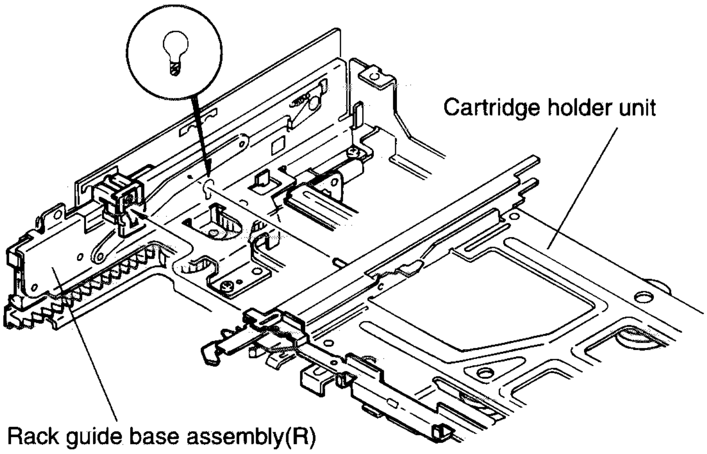

Cartridge holder unit
Rack guide base assembly(R)

Fig.21

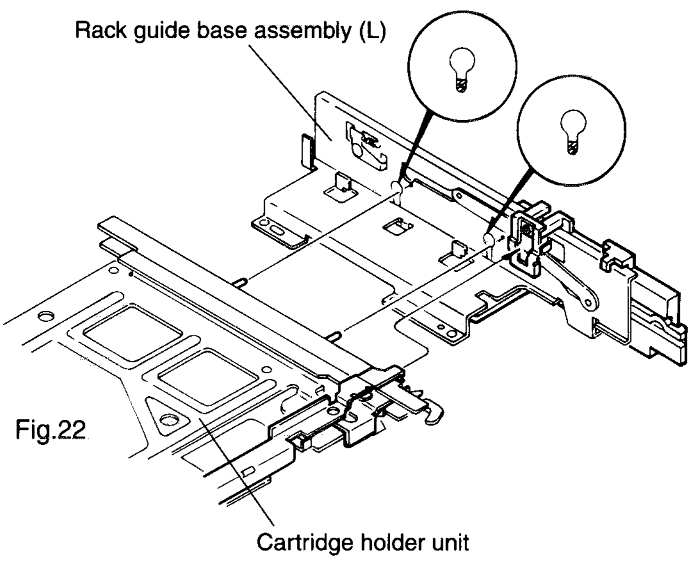

Rack guide base assembly (L)
Cartridge holder unit

Fig.22

■Removing the Rack guide base assembly (L) (see Fig.23 and 24)

1. Remove the one screw B to detach the Hook bracket.
2. Move Rack (W1L) in the direction of the arrow to remove (see Fig.23).
3. Push part A in the direction of the arrow to unlock part B. Move and remove Rack (W2L) in the direction of arrowC. Detach the Link assembly(L) (see Fig.24).

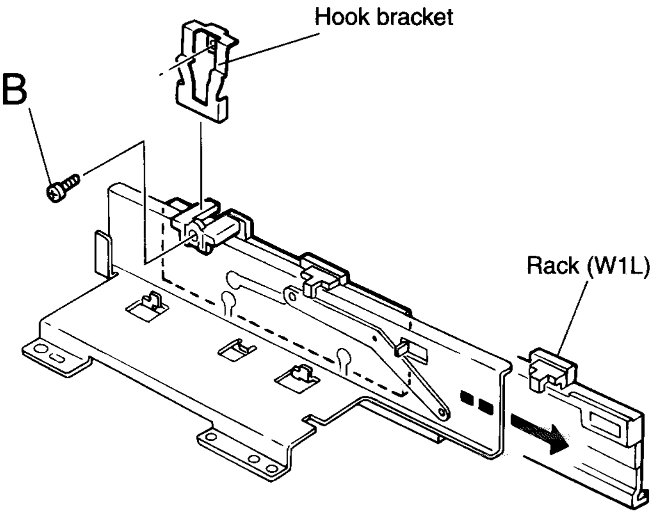

Hook bracket
B
Rack (W1L)

Fig.23

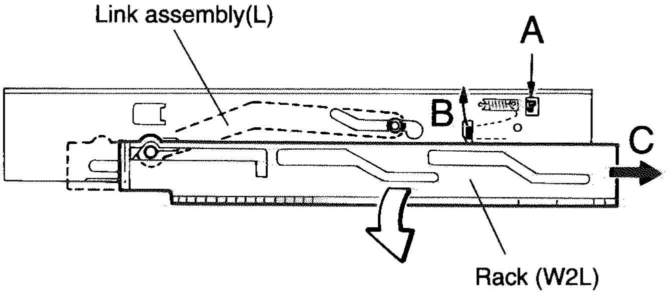

Link assembly(L)
A
B
C
Rack (W2L)

Fig.24

■Removing the Rack guide base assembly (R) (see Fig.25 and 26)

1. Remove the one screw C to detach the Hook bracket.
2. Move Rack (W1R) in the direction of arrow A, then remove it in the direction of arrow B (see Fig.25).
3. Push part C in the direction of the arrow to unlock part D. Move and remove Rack (W2R) in the direction of arrow E. Detach the Link assembly (R)(see Fig.26).

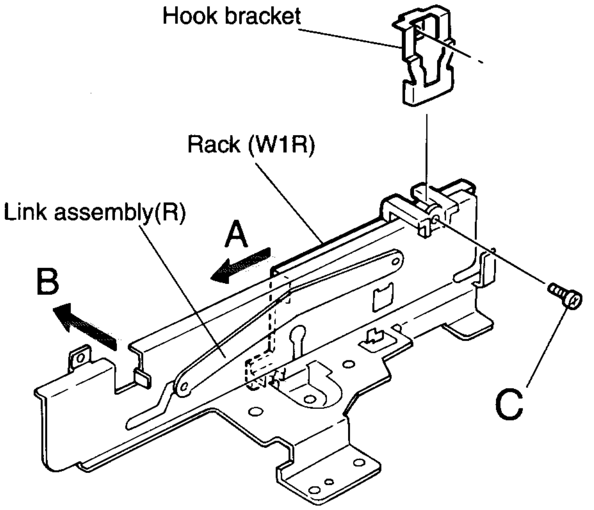

Hook bracket
Rack (W1R)
Link assembly(R)
A
B
C

Fig.25

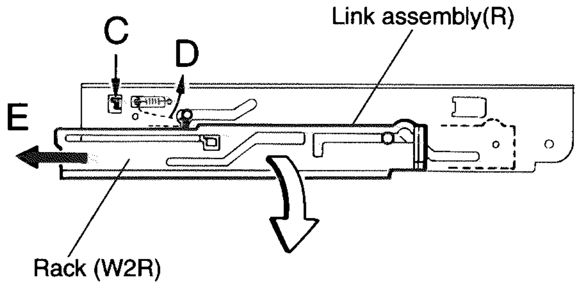

C
D
Link assembly(R)
E
Rack (W2R)

Fig.26

■ Removing the Pickup unit (see Fig.27)

1. Remove the two screws Dto detach the Head joint assembly.
2. After removing the two screws E attaching the Guide shaft, remove the Pickup unit and the Guide shaft together.

■ Removing the Relay board (see Fig.27)

1. After removing the screw F attaching the Relay board, unsolder the wires out going from the Spindle motor assembly and Feed motor assembly.
   Remove the Relay board.

■ Removing the Feed motor (see Fig.27)

1. After removing the two screws G and the one screw H, dismount the Feed motor assembly.

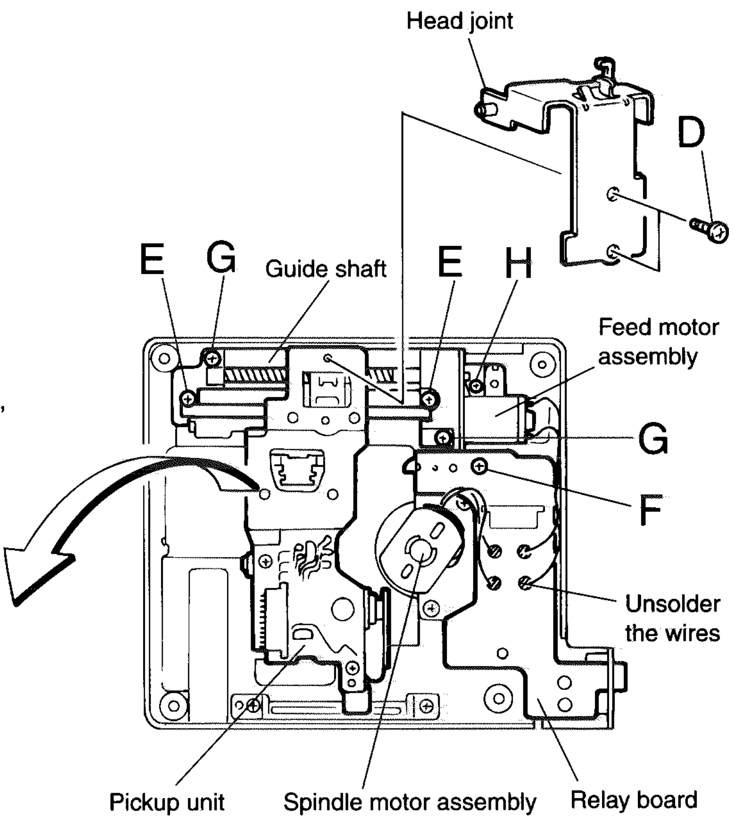

Head joint
D
E
G
Guide shaft
E
H
Feed motor assembly
G
F
Unsolder the wires
Pickup unit
Spindle motor assembly
Relay board

Fig.27

■Removing the Drive assembly

(see Fig.28-30)

1. After removing the four screws I attaching the Motors & gears assembly, remove it (see Fig.28).
2. After removing the two Slit washers from the Worm wheels, detach the Worm wheels from the Motor bracket assembly.
3. After removing the screw J attaching the Relay board and two screws K attaching the Motors & gears assembly, remove the Motor bracket assembly from the Motors & gears. Then unsolder the Motor board and remove the DC motors (see Fig.29).
4. After removing the two Slit washers attaching Cam L, detach Cam L (see Fig.30).
5. Move and remove Cam R in the direction of the arrow.
6. After moving the Arm in the direction of the arrow, remove the two Gears (see Fig.30).
7. Remove the spring.
8. After removing the Sit washer, detach the Clutch link (2) assembly (see Fig.30).

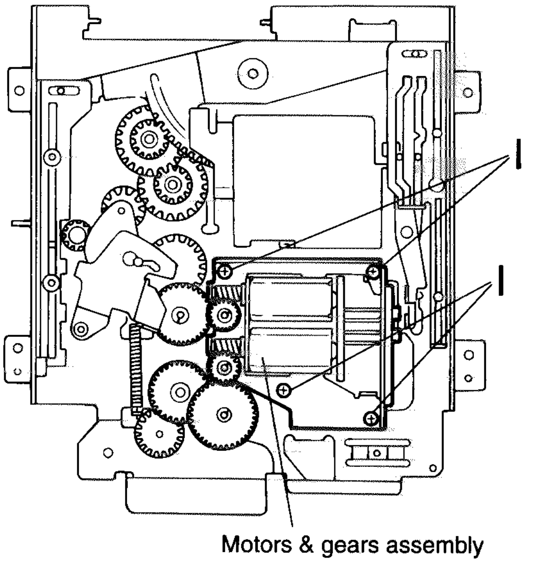

I
I
Motors & gears assembly

Fig.28

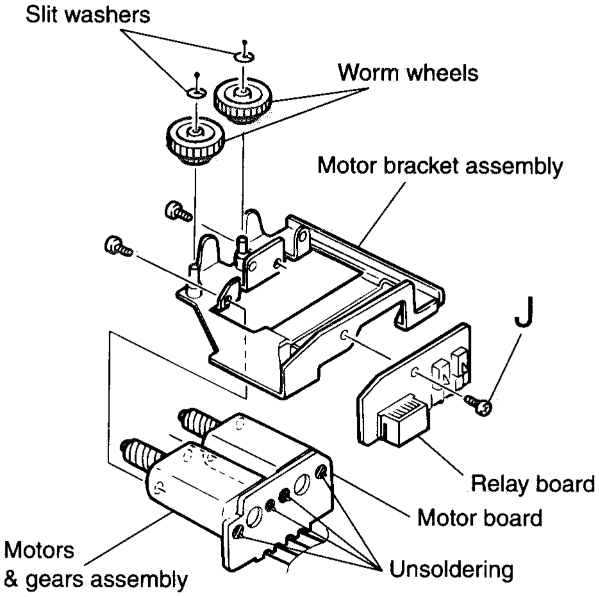

Slit washers
Worm wheels
Motor bracket assembly
J
Relay board
Motor board
Motors
& gears assembly
Unsoldering

Fig.29

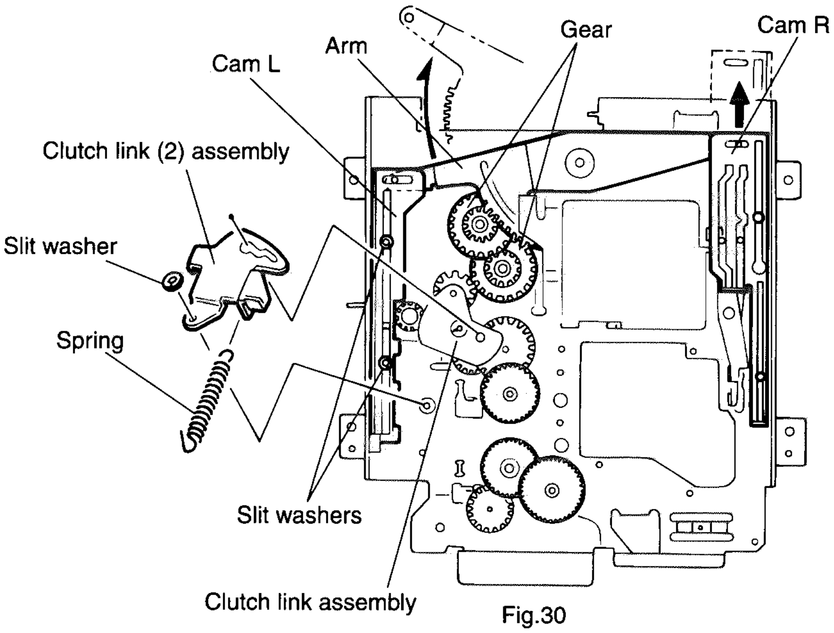

Cam L
Arm
Gear
Cam R
Clutch link (2) assembly
Slit washer
Spring
Slit washers
Clutch link assembly

Fig.30

■Removing the Stocker assembly

(see Fig.31-34)

1. After removing the screw L, detach the Disk switch board (see Fig.31).

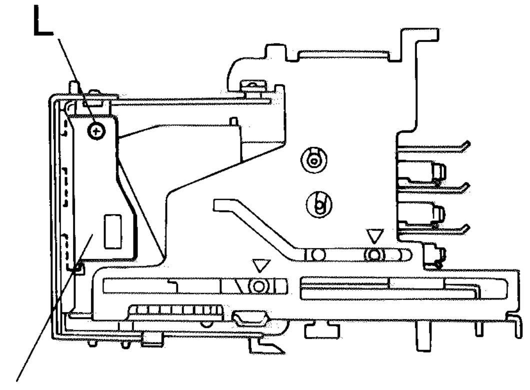

L
Disk switch board

Fig.31

2. After removing the screw Mdetach the Gear base assembly and Gear(C).

3. After removing the two Slit washers N, detach the Link (A) assembly from the Top base assembly (see Fig.32).

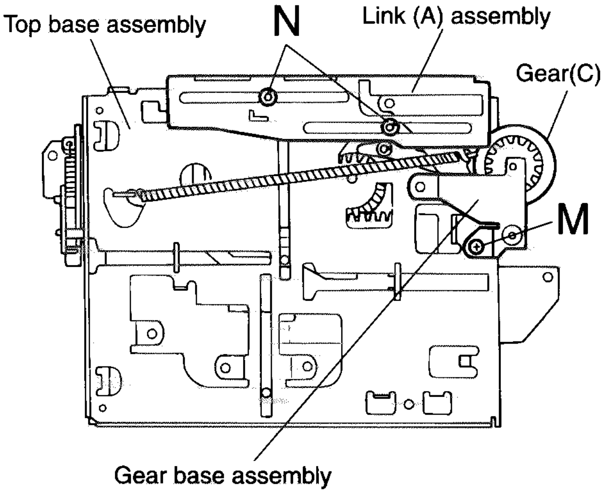

Top base assembly
N
Link (A) assembly
Gear(C)
M
Gear base assembly

Fig.32

4. Remove the two screws O attaching the Side base assembly (see Fig.34) and the Slit washer on the side (see Fig.33) Remove the Stocker sub assembly and Side base assembly from the Top base assembly.

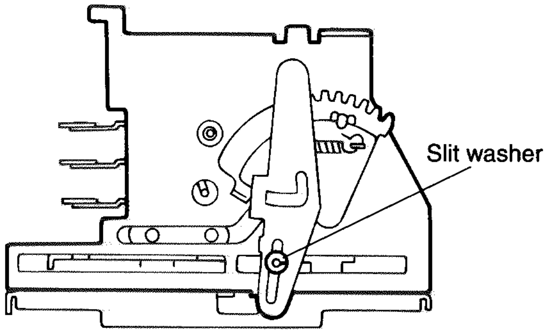

Slit washer

Fig.33

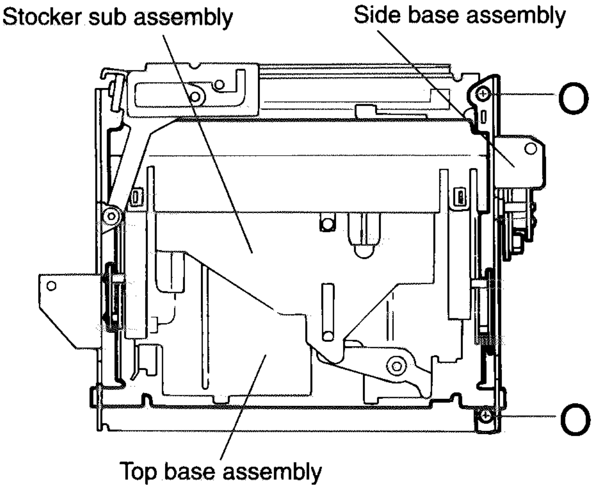

Stocker sub assembly
Side base assembly
O
O
Top base assembly

Fig.34

■Removing the Stocker base assembly
(see Fig.35 and 36)

1. After releasing the four joint Ps (two joints are in the bottom and others are on the top side of the Front cover and the Stocker sub assembly), remove the Front cover in the direction of the arrow.

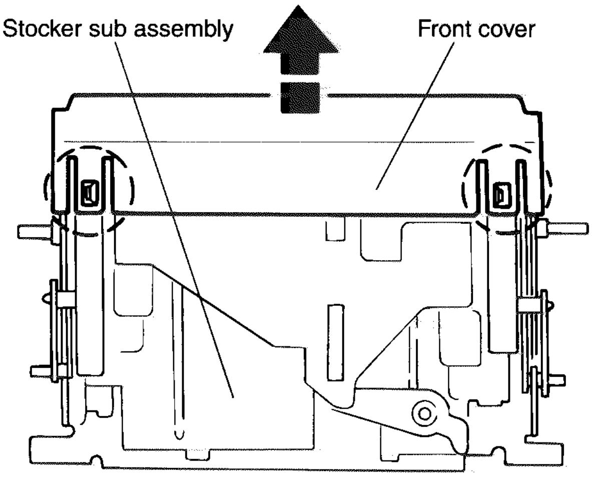

Stocker sub assembly
Front cover

Fig.35

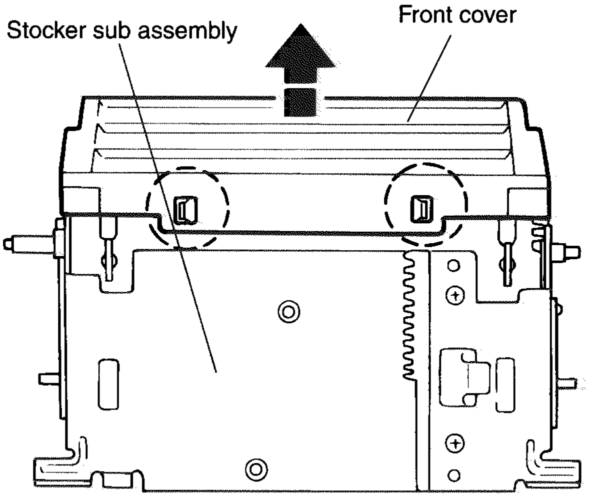

Stocker sub assembly
Front cover

Fig.36

■Assembling the Stocker assembly
(see Fig.31-34 and 37)

- Insert Studs A and B on the side of the Stocker sub assembly into the two grooves marked∇ on the Top base assembly.
- Insert Studs C and D into the two grooves of the Top base assembly to attach the Stocker sub assembly.
- Attach the Side base assembly.

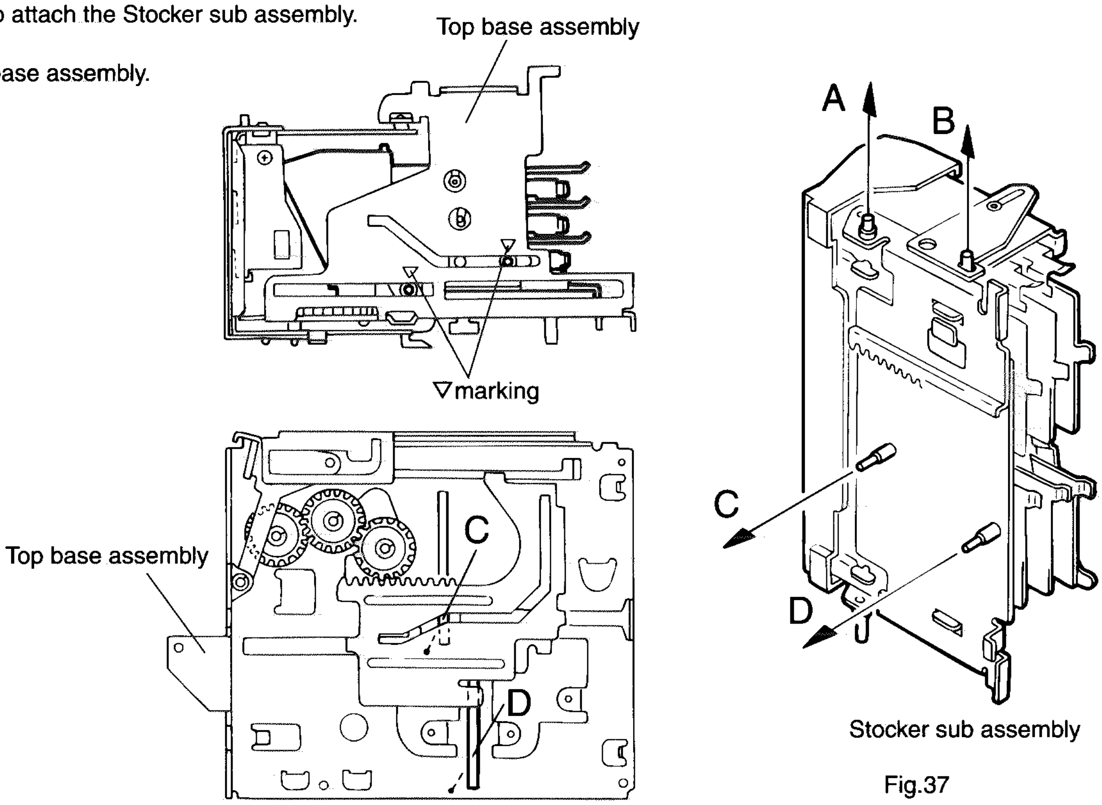

Top base assembly
∇marking
Top base assembly
C
D
A
B
C
D
Stocker sub assembly

Fig.37

〔Ejecting the Disk〕 (see Fig.38)

■When in PLAY mode

1. To put the Disk into the Disk case, turn the Timing belt in the direction of the arrow marked on the Top cover. Move Lever E in the direction of the arrow (to the left).
2. Move Shaft F in the direction of the arrow (to the front).
3. Eject the Disk.

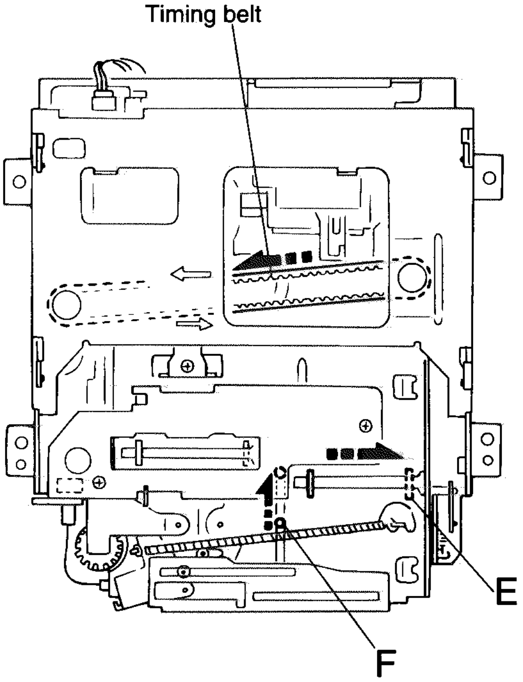


Fig.38

< Cassette Mechanism Section >

(1) Removing the head mount assembly (See Fig 1.2)

1. Remove the deck & power supply unit cassette door cover.
2. Remove the front cover.
3. Remove the top cover.
4. Remove the front panel.
5. Remove the front panel assembly.
6. Remove the cassette mechanism assembly.
7. Remove the three screws 1 retaining the head mount assembly (See Fig 1)
8. After removing the FPC holder from the chassis, disconnect the head flexible wire from the connector CN301 on the head amp.P.C.board.

Caution 1. Whenever the head mount assembly has been changed,be sure to adjust the head azimuth.

Caution 2. The direction lever gear and head mount gear should be reassembled according to the methods in Fig 2.

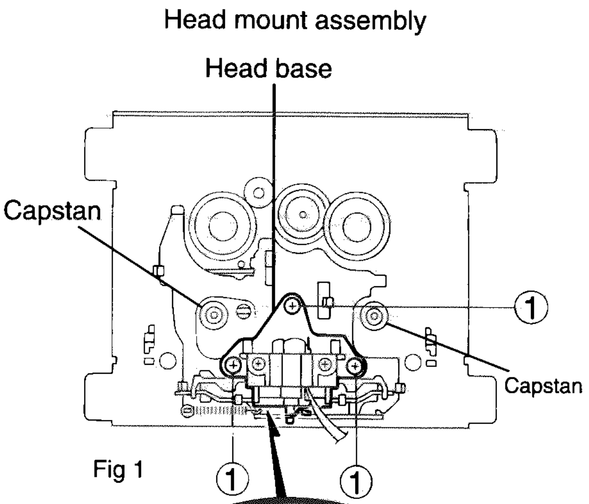
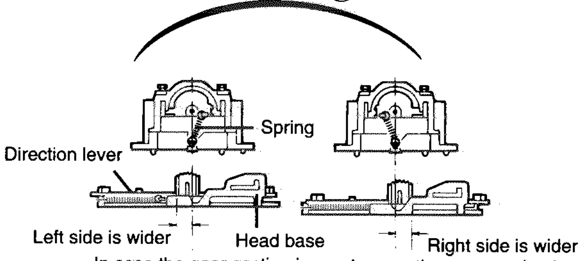

Head mount assembly
Head base
Capstan
①
Capstan
①
①

Fig 1


Spring
Direction lever
Left side is wider
Head base
Right side is wider

In case the gear section is located on the left-hand side from the center, the head mount spring should be positioned in the right side as indicated above.

In case the gear section is located on the right-hand side from the center, the head mount spring should be positioned in the left side as indicated above.

Fig 2

(2)Removing the pinch roller assembly (See Fig 3)

After opening the pawl A retaining the right side pinch roller assembly toward outside, pull out the pinch roller assembly. The left side pinch roller assembly should also be pulled out similarly according to the above step.

Caution. When assembling each pinch roller assembly, make sure that the stud is inserted between the direction lever and pinch roller spring.

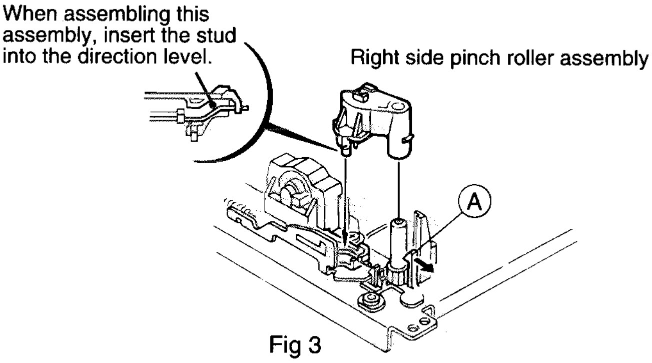

When assembling this assembly, insert the stud into the direction level.
Right side pinch roller assembly
Ⓐ

Fig 3

(3)Removing the FM bracket assembly (See Fig 4)

1. Remove the three screws 2 retaining the FM bracket assembly.
2. While opening the two engagements B fixing the FM bracket assembly to outside, remove the bracket assembly.
3. While raising the FM bracket assembly, remove the capstan belt and flywheel.

Caution. In this case, the belt and flywheel should be removed so carefully as not to cause any damage to the reel belt.

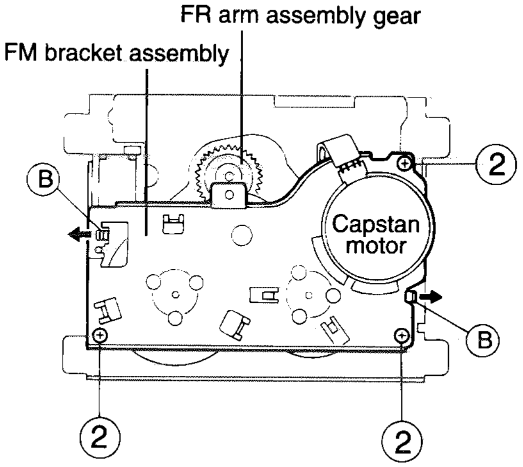

FR arm assembly gear
FM bracket assembly
B
2
Capstan motor
B
2
2

Fig 4

(4)Method of reassembling the FM bracket assembly (See Fig 5.6)

1. First of all, attach the larger flywheel to slide guide of the FM bracket assembly as shown in Fig 5.
2. Set the FM bracket assembly to the two engagements C.
3. Pass the thrust guide of the flywheel through the notch D and turn the flywheel
4. Next, set the smaller flywheel similarly according to the above steps
5. Hang the capstan belt
6. Hang the reel belt on the hook as shown in Fig 6
7. After turning the FM bracket assembly upside down, insert the flywheel capstan shaft into the bearing at first.
8. After making sure that the reel belt is not twisted, remove the belt from the stud and hang this belt onto the flywheel.
9. Mount the FM bracket assembly.

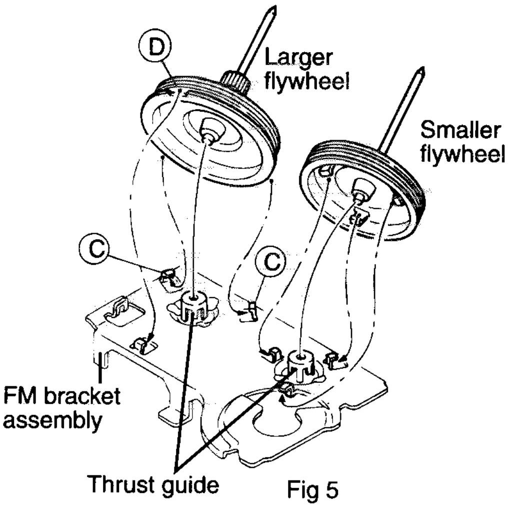

D
Larger flywheel
Smaller flywheel
C
C
FM bracket assembly
Thrust guide

Fig 5

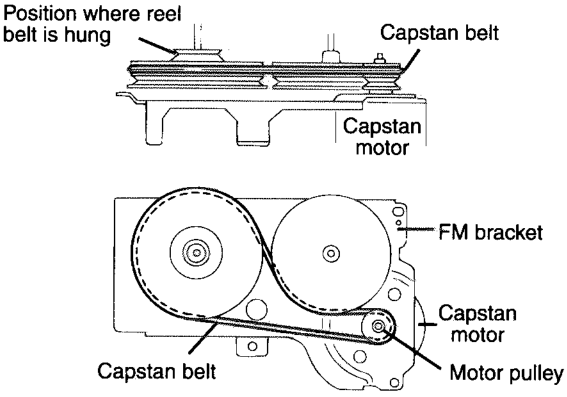

Position where reel belt is hung
Capstan belt
Capstan motor
FM bracket
Capstan motor
Motor pulley
Capstan belt

Fig 6

(5)Removing the leaf switch P.C.board (See Fig 7)

1.Remove the solenoid terminal soldering.
2.Remove the one screw 3 retaining the leaf switch P.C.board
3.Disengage the four engagements E fixing the leaf switch P.C.boatd.

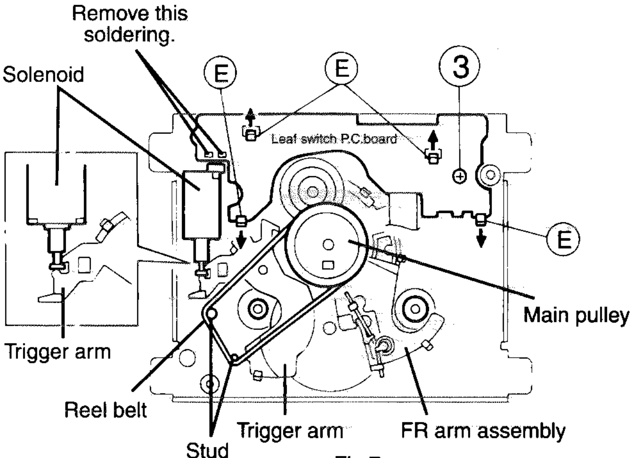
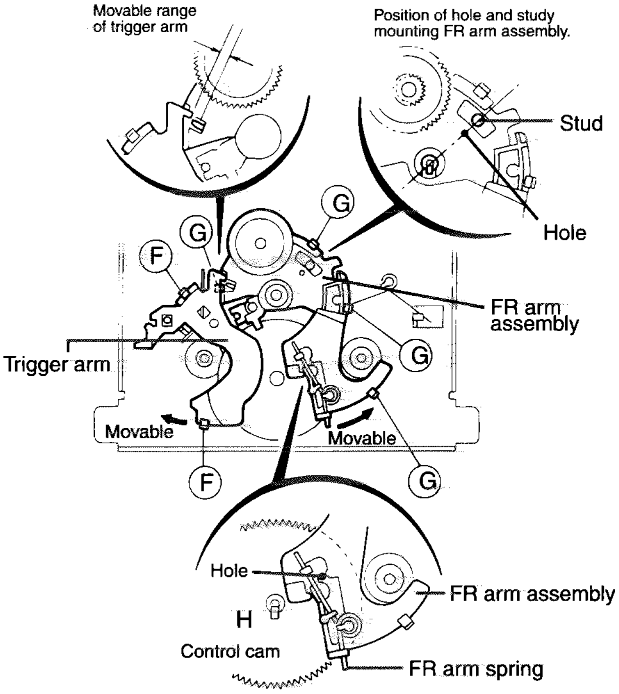

Remove this soldering.
Solenoid
E
E
3
Leaf switch P.C.board
E
Main pulley
Trigger arm
Reel belt
Stud
Trigger arm
FR arm assembly

Fig 7

(6)Removing the control cam (See Fig 7.8.9)

1.Remove the FM bracket assembly and flywheel.
2.Dismount the reel belt and pull out the main pulley
3.While opening the two pawls F fixing the trigger arm in the arrow direction, remove the arm from the clamp shaft
4.Dismount the elevator ring
5.Remove the FR arm spring, and while opening the four pawls G fixing the FR arm toward outside, pull out the FR arm assembly
6.While aligning the engagement H of the control cam to the center of bearing hole, pull out the control cam.


Movable range of trigger arm
Position of hole and study mounting FR arm assembly.
Stud
Hole
G
G
F
FR arm assembly
Trigger arm
G
Movable
Movable
F
G
Hole
H
Control cam
FR arm assembly
FR arm spring

Position of cam hole and arm tip when mounting FR arm assembly Fig 8

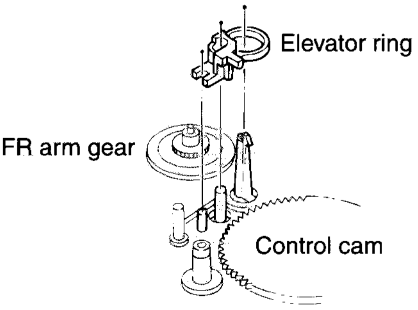

Elevator ring
FR arm gear
Control cam

Fig 9

(7)Reassembly the control cam (See Fig 8~13)

1.When assembling the control cam, pull the head base toward the from side while pressing the forward/reverse arm in the arrow direction.
2.Under the conditions in Step 1, the head base beneath the control cam and the position of the forward/reverse arm stud should be moved in the arrow direction.

Caution 1. Make sure that the cam is turned smoothly When turning it in counterclockwise direction.
Caution 2. The cam spring should be clicked due to the cross movement of the head base.

3.After attaching the control cam to the shaft, align the concave I of the control cam to the position as shown in Fig 12 while moving the forward/reverse arm and head base.
4.For making it possible to mount the FR arm assembly, align the concave section I of the control cam to the position as shown in Fig 13 while turning the control cam.

Caution 1. The positions of the hole and stud in Fig 8 should be aligned so carefully for mounting the FR arm assembly.
Caution 2. Confirm that the FR arm is reset to the initial position by moving the arm in the arrow direction.

5.Attach the elevator ring.
6.Attaach the trigger arm.

Caution . Confirm that the trigger arm is reset to the initial position by moving the arm in the arrow direction.

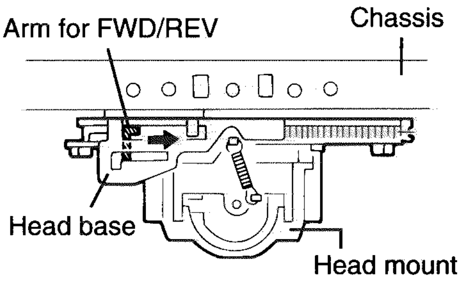

Arm for FWD/REV
Chassis
Head base
Head mount

Fig 10

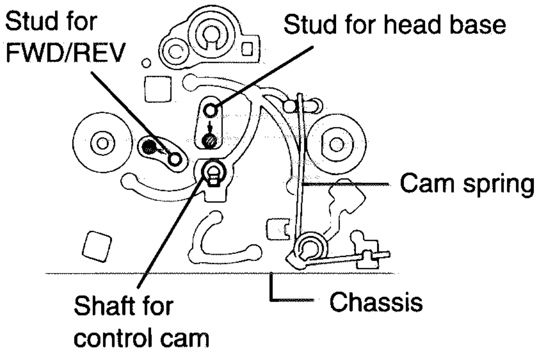

Stud for FWD/REV
Stud for head base
Cam spring
Shaft for control cam
Chassis

Fig 11

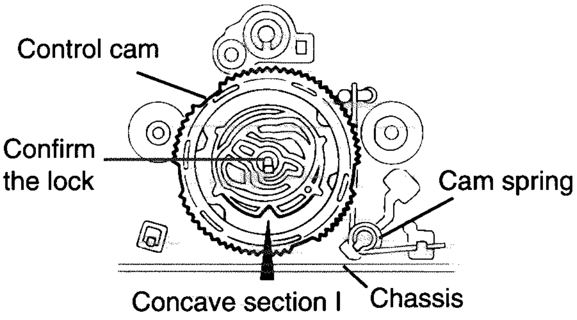

Control cam
Confirm the lock
Cam spring
Concave section I
Chassis

Fig 12

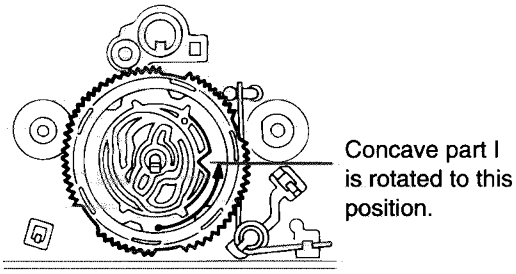

Concave part I is rotated to this position.

Fig 13

Adjusting method (MD section)

1.Equipment necessary for adjustment
Oscilloscope
Laser power meter (Advantest TQ8210 or equal goods)
Sensor for Laser power meter (or the disc type sensor)
MD test disc "MRG-1018"
MD recordable disc

2.Setting of test mode
The test mode is turned on and the adjustment of an electric circuit is adjusted.
the power supply code is inserted in the AC outlet while pushing "STOP ■ key" on the main body side and "PLAY/PAUSE ▶/II key" at the same time to change to the test mode.
the power supply is turned on pushing "POWER key" after adjusts because it is displayed in the display when entering the test mode as "TEST MODE".

3. Initialization of EEPROM
In the test mode state then the remote control mode selection to do "MD" then push the "REC PAUSE key" and clear till then adjustment data in EEPROM.
Performed in case of this operate, should be finish the adjustment completely.

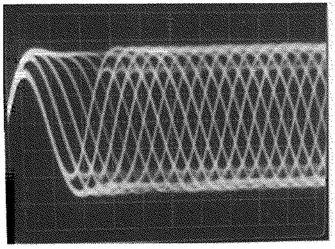
4. Adjusting method
Insert the sensor of laser power meter to MD mechanism unit from diagonal furnace Or, the disk type sensor is inserted from a main body front side. **The laser ten times or more a past CD player is output so that this machine may record magnetism. Please note that occasionally touches looking straight at the laser beam, and the body enough when you confirm the operation not to mention adjusting. Moreover,** please note the wound taintless by the one of all surroundings recording on the disk used because the adjustment is automatically done by the disk confirmation after the laser power is adjusted and a set value is written.

Item	Adjusting method	Adjustment location	Standard value	
1.Laser power adjustment	(1) The laser power emits light by playback power when 2key to remote control is pushed. This laser light is measured with the laser power meter. The ▶▶I key to MD (laser power UP) and the I◀◀ key (laser power DOWN) are adjusted by remote control pushing. (2) The laser power emits light by recording power when 2key to remote control is pushed. This laser light is measured with the laser power meter. The ▶▶I key to MD (laser power UP) and the I◀◀ key (laser power DOWN) are adjusted by remote control pushing. (3) Please push the EJECT key to MD after pushing the STOP key to MD after the adjustment ends.	▶▶I Key to remote control and I◀◀ Key	(1) In 0.68mW or more, a value close to 0.68mW (2) In 6.23mW or less,a value close to 6.23mW.	Note) Please go carefully because the adjustment here might destroy the laser diode.

Item	Adjusting method	Adjustment location	Standard value	
2.Disc confirmation	(1) After the laser power is adjusted, Premaster disc is inserted. It is displayed when MD ► key is pushed by remote control as "ON TUNING" in the display, and ends around 7 seconds the adjustment. "OK TUNING" or the error code is displayed in the display. (2) Recording disc is inserted. It is displayed when MD ► key is pushed by remote control as "ON TUNING" in the display, and ends around 15 seconds the adjustment. "OK TUNING" or the error code is displayed in the display. (3) Please push the EJECT key to MD after pushing the STOP key to MD after the adjustment ends. Moreover, please confirm the RF signal becomes each like the next page while adjusting . (4) When the error code is displayed, it is shown that the adjustment became NG. Please confirm the NG location from the NG judgment code table and adjust again.	There is no adjustment location because it is a self adjustment.		Note) Please confirm the disc confirmation after adjusting the laser power without fail. Moreover, the disk used by the disc confirmation must include neither wound nor dirt, etc.Recording disc must use the disc of all surroundings record.

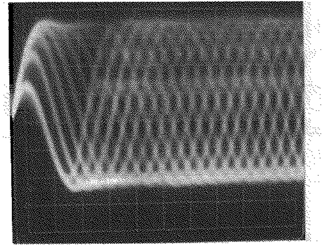
5.NG judgment code table of RF signal and self adjustment NG

RF signal of premasterd disc



0.2V/div. 0.5 μ sec/div.

RF signal of recordable disc



0.2V/div. 0.5 μ sec/div.

NG judgment code table of self adjustment NG

Code	Adjustment NG part
00	Self adjustment incompleteness end
01	Rest switch detection
02	Focus ON
03	EF balance,tracking offset adjustment for PIT section
04	ABCD level adjustment (IV resistance) for PIT section
05	Focus servo AGC for PIT section
06	Tracking servo AGC for PIT section
07	Focus bias adjustment for PIT section
08	EF balance,tracking offset adjustment for GRV section
09	ABCD level adjustment (IV resistance) for GRV section
0A	Focus servo AGC for GRV section
0B	Tracking servo AGC for GRV section
0C	Focus bias adjustment for GRV section
0D	Room temperature measurement
0E	Write in EEPROM
FF	Normal termination of self adjustment

(Example) When the rest switch detection is NG

[NG ERR:E1] is displayed like this.

6.Check (Independent operation mode)

Please check makes to the test mode and the selection of the mode of remote control made "MD".

Focus ON : Sleep key of remote control
Pit rough servo : 6 key of remote control
Groove rough servo : 7 key of remote control
Tracking ON : 8 key of remote control
Tracking OFF : 9 key of remote control
STOP : Stop key of remote control
EJECT : Eject key of main body

7. Method of making clear test mode

If the power supply is turned off once pushing "POWER key", the test mode is released when the adjustment and the confirmation end.

Adjustment method (Cassette deck section)

1.Equipment necessary for adjustment
Electronic voltage meter
Frequency counter
Wow flutter meter
Low frequency oscillation machine (The one that output of terminal 0dBs 600-ohms every oscillation frequency 50-20kHz is gotten)
Attenuator (Impedance : 600Ω)
Distortion meter (With built-in band-pass filter)
Resistance 600Ω (for attenuator matching)

TAPE No.	Frequency	Usage
VTT-703L	10kHz	Head azimuth for adjustment
VTT-712	3kHz	Tape speed,wow flutter
VTT-724	1kHz	Standard level
TMT-6447,6448		Music scan
AC-225		Play/rec measurement tape(TYPE I)
CTG-N(CT-100M)		FWD/REV playback torque
TW-2231		FF/REW torque
C-120		for running confirmation

2.Adjustment and repair related to mechanism

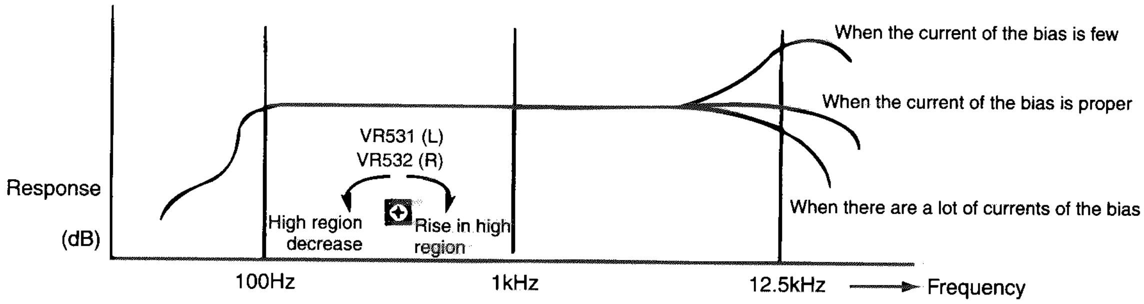
Item	Adjusting method	Adjustment location	Standard value
1.Head azimuth	1.Connection an electronic voltmeter to 'DOLBY NR' TP301 to playback VTT703L(10kHz). 2.Adjust the azimuth screw A so that the indication of the voltmeter becomes maximum when 'PLAY ' button is pressed. 3.Adjust the azimuth screw B so that the indication of the voltmeter becomes maximum when 'PLAY ' button is pressed. 4.After marking the adjustment, apply screw look to prevent screws A,B coming loose. Note 1.When the specified characteristic cannot be obtained because of head wear, excessive magnetization, etc., replace the head assembly and adjust the head azimuth. Also, perform the electric adjustment. 2.When there is the difference of more than 3-4dB between left and right output levels, replace the head assembly to avoid complaints.	Screws A,B for head azimuth (Refer to Fig.1)	Maximum

Item	Adjusting method	Adjustment location	Standard value
2.wow & flutter	1.Connect the wow & flutter meter to the 'DOLBY NR' TP301 and playback VTT712. 2.It is reading should be within 0.18% (WRMS). Note As complaint may occur the wow & flutter fluctuates by 0.1% even though it is allowed in the standard, repairing is required.		Less than 0.18% (WRMS)
3.Playback torque	Measure the torque in the playback mode by the torque meter. Note When the standard torque cannot be obtained, replace the FR arm assembly or motor.		26~62g-cm
4.FF/REW torque	Measure the torque in the fast forward mode by the torque meter. Note When the standard torque cannot be obtained, replace the motor.		80~170g-cm

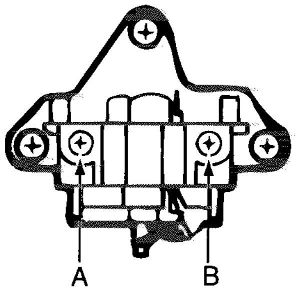
3.Electrical Adjustment Section

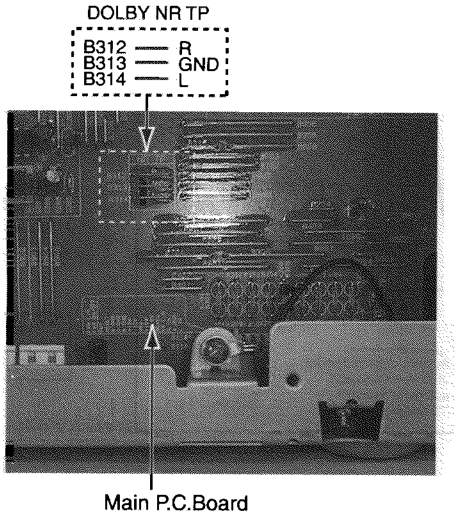
Item	Adjusting method	Adjustment location	Standard value
1.Tape speed	1.Connect the frequency counter to the 'DOLBY NR' TP301 and playback VTT712. 2.Adjust the semi-fixed resistor VR581. Note Connect a wow & flutter meter with a built-in frequency counter to the speaker terminals.	VR581	3000Hz±10Hz
2.Playback level	1.Connect an electronic voltmeter to 'DOLBY NR' TP301 to playback VTT724 (1kHz : -4dBs). 2.Adjust the semi-fixed resistor to obtain the standard value. Note The playback level values when the head is replaced so should be adjusted. Use an electronic voltmeter with an impedance of 100Ω or more.	L : VR503 R : VR504	411mV(-5.5dBm)
3.playback frequency response	1.Connect an electronic voltmeter to 'DOLBY NR' TP301 to playback VTT703L (10kHz : -10dBs). 2.Adjust the semi-fixed resistor to obtain the standard value.	L : VR501 R : VR502	206mV(-11.5dBm)
4.Recording bias frequency	1.Connect a frequency counter to 'BIAS TP' to playback VTT703L (10kHz : -10dBs). 2.Adjust the L521 to perform a recording the bias frequency.	L521	105kHz±5kHz

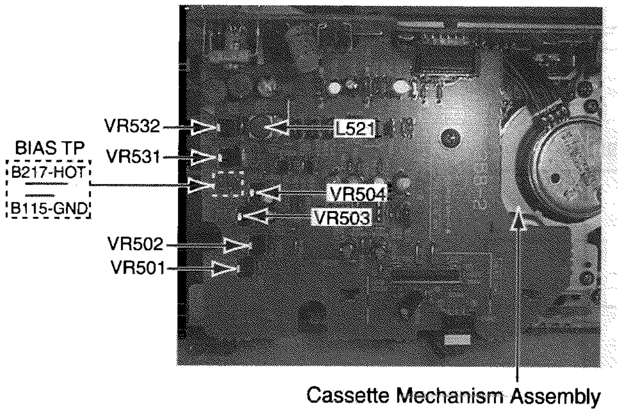
Item	Adjusting method	Adjustment location	Standard value
5.Record/play frequency response (Bias current)	1.Supply 1kHz and 12.5kHz with 300mV signals to VCR IN terminals respectively to record them. 2.Connect an electronic voltmeter to the 'DOLBY NR' TP301 to confirm the recorded values. 3.If the values are not satisfied, adjust the semi-fixed resistors and record the signal again to confirm the recorded values. Note 1.The recording and playback frequency response of a cassette deck are adjusted by adjusting the bias. 2.Perforn the adjustment with normal tape 'AC-225' and confirm that the values are within the range for metal tape 'AC-712'	L : VR531 R : VR532	0dB±3dB with 1kHz as the standard.

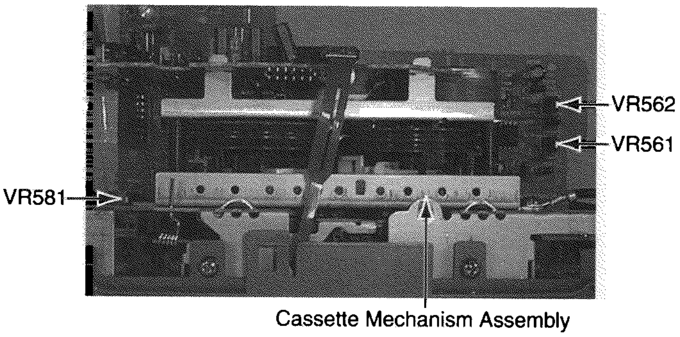


Head block section of Cassette mechanism




DOLBY NR TP
B312 — R
B313 — GND
B314 — L
Main P.C.Board


VR532
BIAS TP
VR531
B217-HOT
B115-GND
L521
VR504
VR503
VR502
VR501
Cassette Mechanism Assembly


VR562
VR561
VR581
Cassette Mechanism Assembly

Flow of Functional Operation Until TOC Read (CD)

Power ON → Play Key → Slider turns REST SW ON.

Check Point

Slider turns REST SW ON. → Confirm that the voltage at the pin17 of CN604 is "H"➡"L"➡"H".

↓

Automatic tuning of TE offset

↓

Laser ON → Check that the voltage at the pin40 of IC603 is + 5V?

↓

Detection of disc

↓

Automatic tuning of Focus offset

↓

Automatic measurement of Focus S-curve amplitude → Confirm that the Focus error S-cuve siganl at the pin28 of IC603 is approx.2Vp-p

↓

Disc is rotated → Confirm that the signal from pin24 IC603 is 0V as a accelerated pulse during approx.400ms.

↓

Focus servo ON (Tracking servo ON)

↓

Automatic measurement of Tracking error amplitude → Confirm the waveform of the Tracking error signal. at the pin 25 of IC601 (R609) (See fig-1)

↓

Automatic tuning of Tracking error balance → Confirm the waveform of the Tracking error signal. at the pin 25 of IC601 (R609) (See fig-1)

↓

Automatic tuning of Focus error balance

↓

Automatic tuning of Focus error gain

↓

Automatic tuning of Tracking error gain

↓

TOC reading → Confirm the eys-pattern at the lead of TP602

↓

Play a disc

■ Tracking error waveform at TOC reading

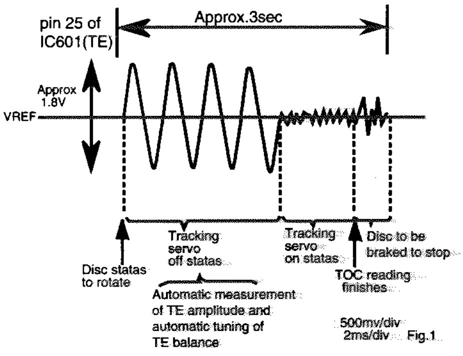
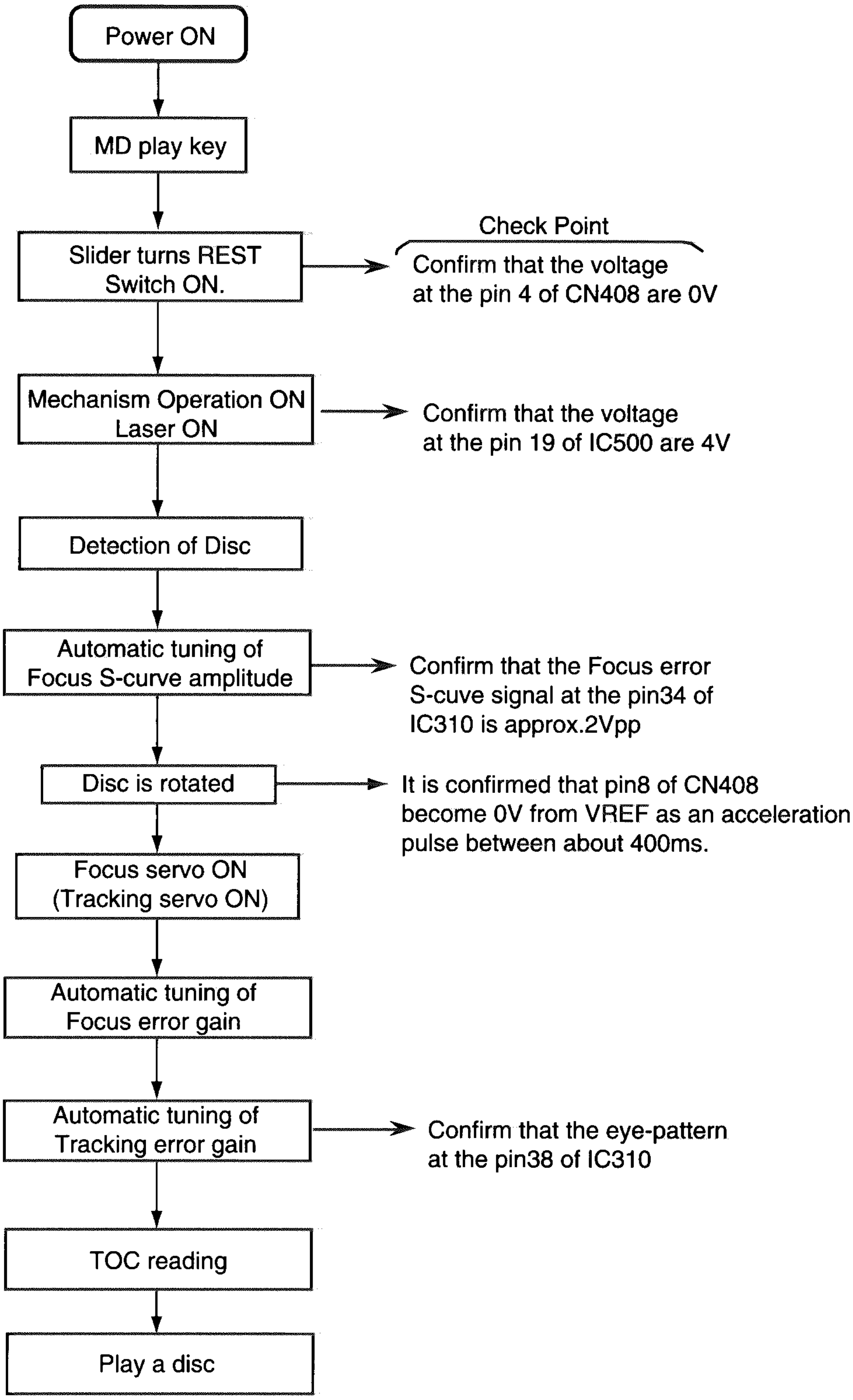


Fig.1

Flow of Functional Operation Until TOC Read (MD)


Power ON
MD play key
Slider turns REST Switch ON.
Mechanism Operation ON Laser ON
Detection of Disc
Automatic tuning of Focus S-curve amplitude
Disc is rotated
Focus servo ON (Tracking servo ON)
Automatic tuning of Focus error gain
Automatic tuning of Tracking error gain
TOC reading
Play a disc

Check Point

Confirm that the voltage at the pin 4 of CN408 are 0V

Confirm that the voltage at the pin 19 of IC500 are 4V

Confirm that the Focus error S-cuve signal at the pin34 of IC310 is approx.2Vpp

It is confirmed that pin8 of CN408 become 0V from VREF as an acceleration pulse between about 400ms.

Confirm that the eye-pattern at the pin38 of IC310

CD Section

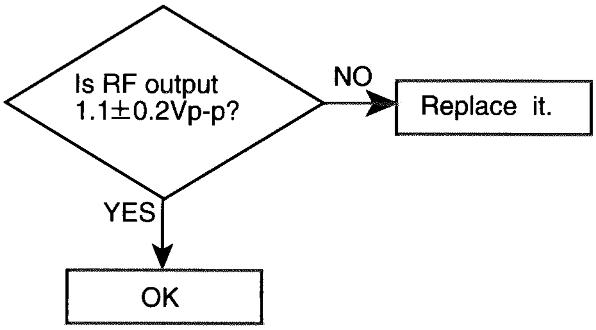
Maintenance of Laser Pickup

(1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

(2) Life of the laser diode (Fig.1)
When the life of the laser diode has expired, the following symptoms will appear.

1. The level of RF output (EFM output:amplitude of eye pattern) will below.
2. Driving current necessary to issue the laser diode increases.

Please confirm longevity according to the following flow chart.

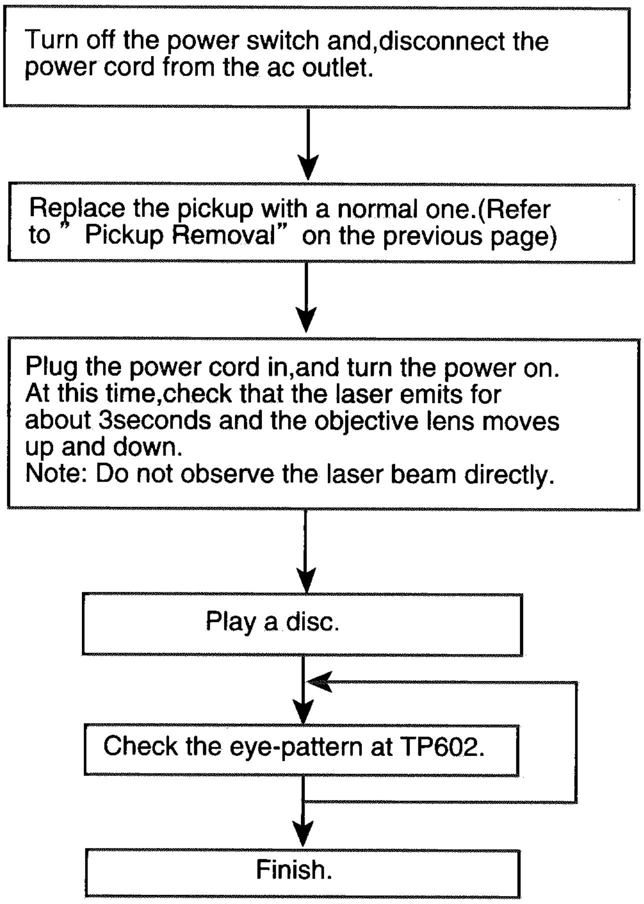


(Fig.1)

(3) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value,the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally,the laser pickup may be damaged due to excessive current.

Replacement of Laser Pickup



Turn off the power switch and,disconnect the power cord from the ac outlet.

Replace the pickup with a normal one.(Refer to " Pickup Removal" on the previous page)

Plug the power cord in,and turn the power on.
At this time,check that the laser emits for about 3seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.

Play a disc.

Check the eye-pattern at TP602.

Finish.

MD Section

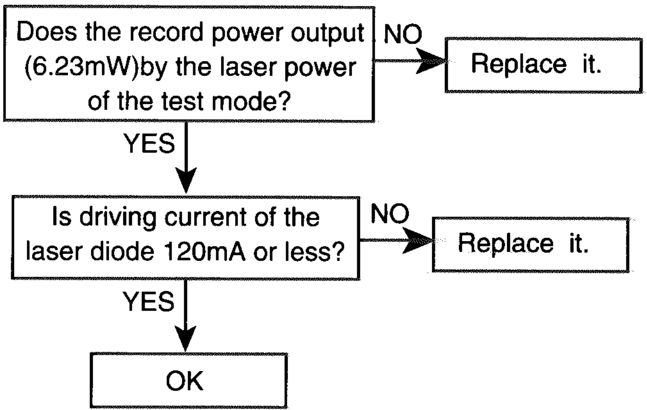
Maintenance of Laser Pickup

(1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

(2) Life of the laser diode (Fig.1)
When the life of the laser diode has expired, the following symptoms will appear.

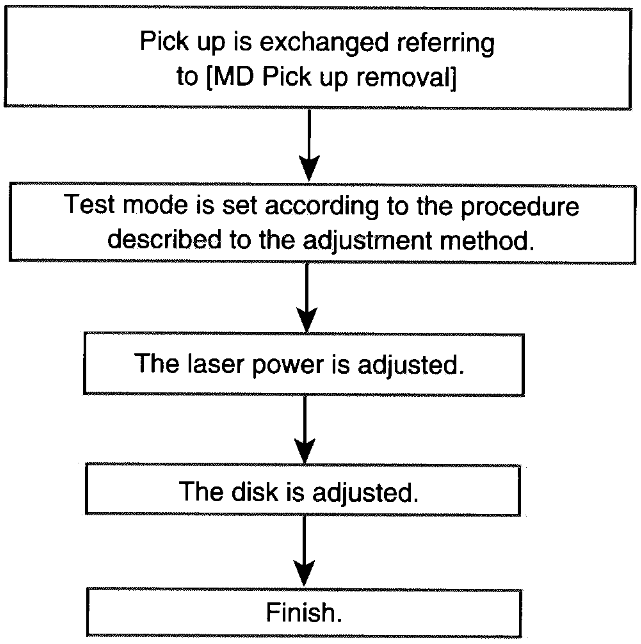
1. The level of RF output (EFM output:amplitude of eye pattern) will below.
2. It is not possible to record.
3. Driving current necessary to issue the laser diode increases.

Please confirm longevity according to the following flow chart.


Does the record power output (6.23mW)by the laser power of the test mode?
NO
Replace it.
YES
Is driving current of the laser diode 120mA or less?
NO
Replace it.
YES
OK

(Fig.1)

Replacement of Laser Pickup


Pick up is exchanged referring to [MD Pick up removal]
Test mode is set according to the procedure described to the adjustment method.
The laser power is adjusted.
The disk is adjusted.
Finish.

Attention

Compare with previous CD players, over 10times laser beam is radiated from this model because of the magnetic recording.
Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.
The wound and note taintless on the disk used because the adjustment is automatically done by the disk confirmation after the laser power is adjusted, and a set value is written by all the recorded one.

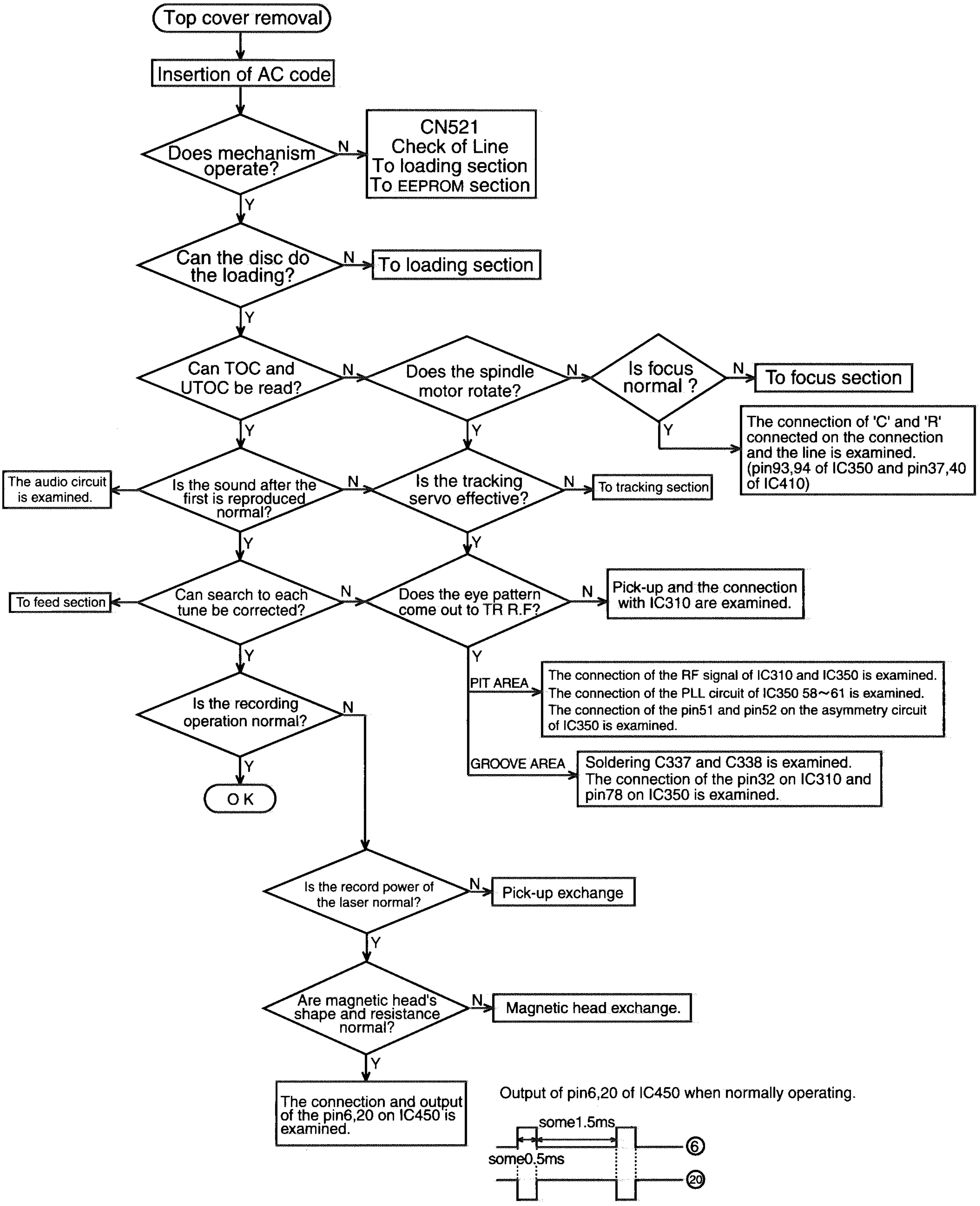
(3)Method of measuring driving current of laser diode

The voltage of R337 of the MD servo control substrate is measured, and it is judged that the longevity of the laser diode disappeared for 120mV or more.

(4) Semi-fixed resistor on the APC (Auto power control)P.C. board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value,the laser diode is almost worn out, and the laser pickup should be replaced.If the semi-fixed resistor is adjusted while the pickup is functioning normally,the laser pickup may be damaged due to excessive current.

Guidance of MD repair

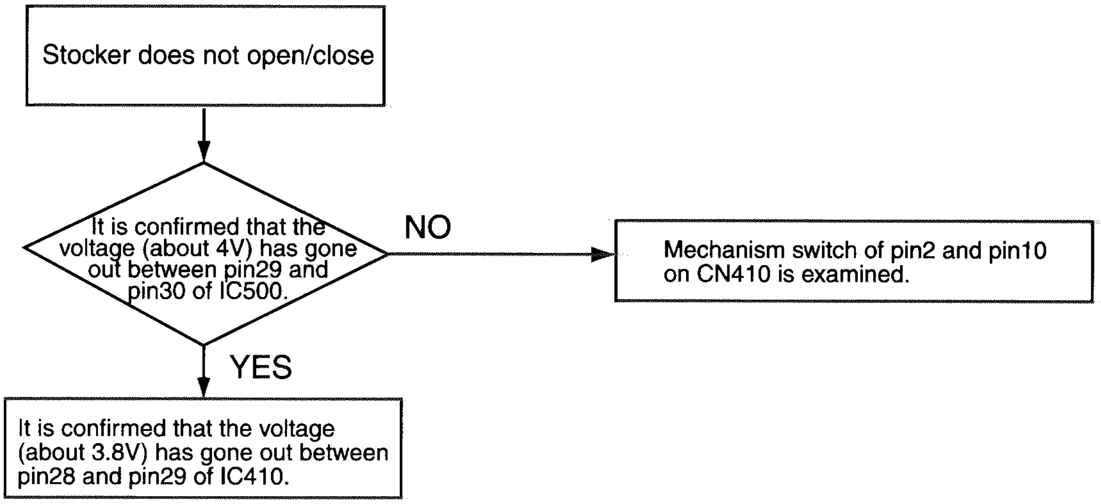

Top cover removal
Insertion of AC code
Does mechanism operate?
N
CN521
Check of Line
To loading section
To EEPROM section
Y
Can the disc do the loading?
N
To loading section
Y
Can TOC and UTOC be read?
N
Does the spindle motor rotate?
N
Is focus normal ?
N
To focus section
Y
The connection of 'C' and 'R' connected on the connection and the line is examined. (pin93,94 of IC350 and pin37,40 of IC410)
Y
Y
The audio circuit is examined.
Is the sound after the first is reproduced normal?
N
Is the tracking servo effective?
N
To tracking section
Y
Y
To feed section
Can search to each tune be corrected?
N
Does the eye pattern come out to TR R.F?
N
Pick-up and the connection with IC310 are examined.
Y
Y
PIT AREA
The connection of the RF signal of IC310 and IC350 is examined.
The connection of the PLL circuit of IC350 58~61 is examined.
The connection of the pin51 and pin52 on the asymmetry circuit of IC350 is examined.
GROOVE AREA
Soldering C337 and C338 is examined.
The connection of the pin32 on IC310 and pin78 on IC350 is examined.
Is the recording operation normal?
N
Y
O K
Is the record power of the laser normal?
N
Pick-up exchange
Y
Are magnetic head's shape and resistance normal?
N
Magnetic head exchange.
Y
The connection and output of the pin6,20 on IC450 is examined.
Output of pin6,20 of IC450 when normally operating.
some1.5ms
some0.5ms
⑥
⑳

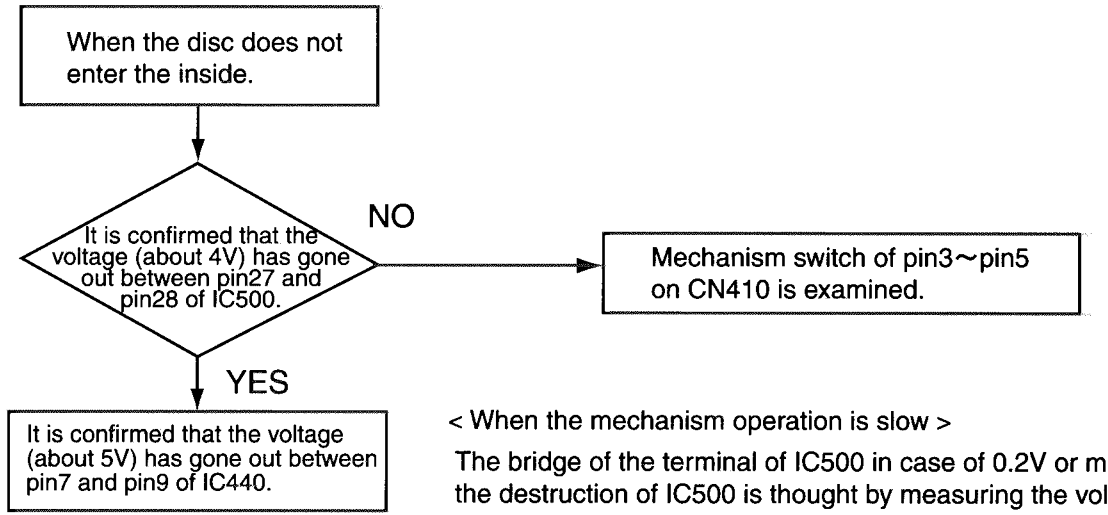
■EEPROM Section

The MD microcomputer accesses EEPROM(IC590) after reset is released, and reads the data of all addresses.
Header is a different or the adjustment data is impossible value at this, and the microcomputer connects the communication with EEPROM and The mechanism operation in the initial etc. is not done at all.
In this case, because the signal enters the state of the discharge in the communication line with EEPROM, the initialization of EEPROM is needed.
When EEPROM is exchanged for the new article and data is broken, pin18 `21 of CN521 are connected with the ground and power supply (AC) of the set is turned on.
When it can do the thing that the mechanism does the initialization operation is completion of EEPROM.
Pin18 `pin21 of CN521 are liberated, and afterwards, input and adjust power supply (AC) of the set again.
When this phenomenon continues even if EEPROM initializes,electric destruction is thought.

■Loading section

Confirmation of connecting and soldering of CN403,CN410,CN418.
Confirmation of power supply terminal of motor driver (CN410).


Stocker does not open/close
It is confirmed that the voltage (about 4V) has gone out between pin29 and pin30 of IC500.
NO
Mechanism switch of pin2 and pin10 on CN410 is examined.
YES
It is confirmed that the voltage (about 3.8V) has gone out between pin28 and pin29 of IC410.

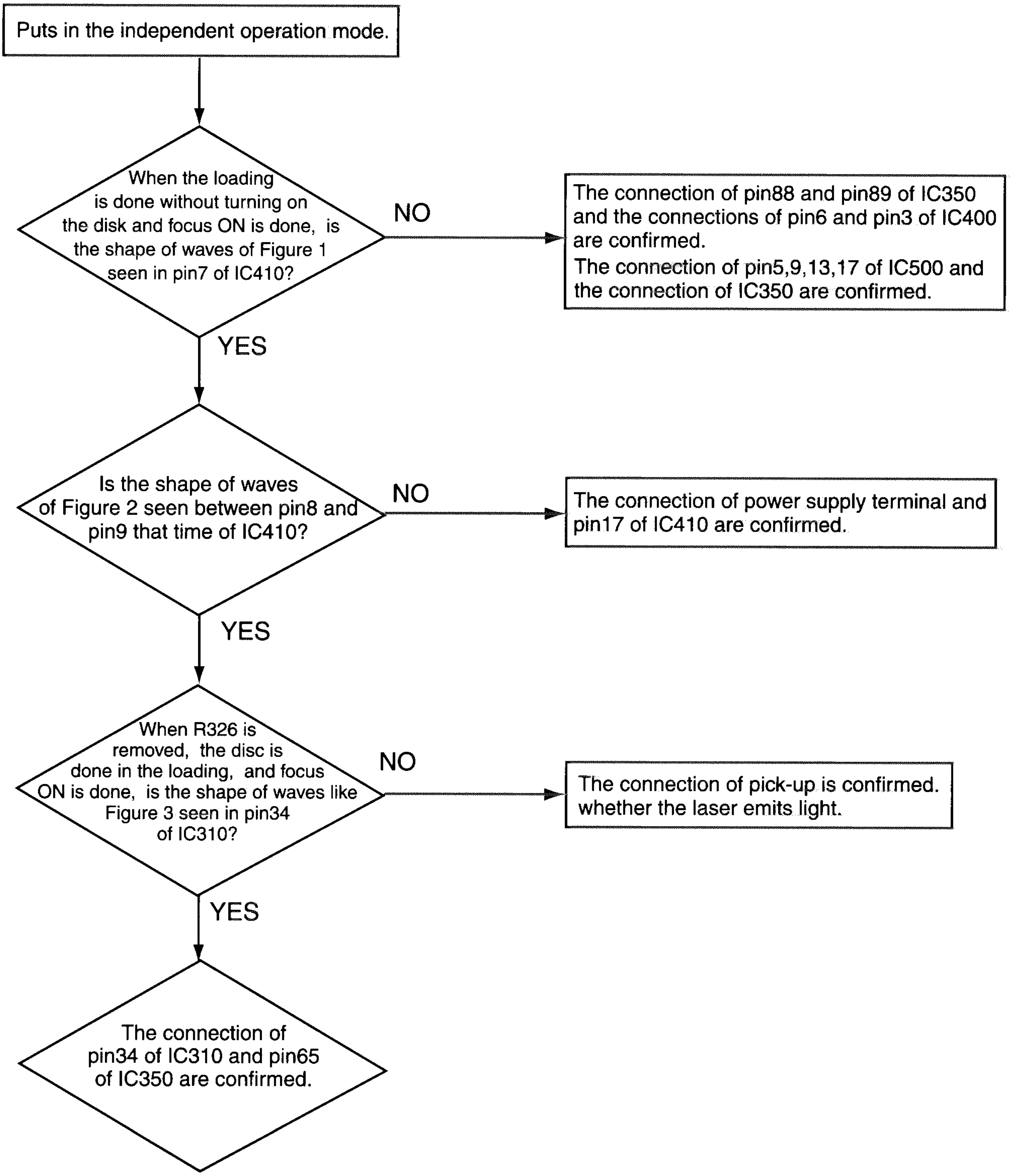

When the disc does not enter the inside.
It is confirmed that the voltage (about 4V) has gone out between pin27 and pin28 of IC500.
NO
Mechanism switch of pin3~pin5 on CN410 is examined.
YES
It is confirmed that the voltage (about 5V) has gone out between pin7 and pin9 of IC440.

< When the mechanism operation is slow >

The bridge of the terminal of IC500 in case of 0.2V or more or the destruction of IC500 is thought by measuring the voltage at both ends of R505.

■Focus section

The loading operation can be done without the disc when either of pin3~5 of CN410 is connected with the ground.



Puts in the independent operation mode.

When the loading is done without turning on the disk and focus ON is done, is the shape of waves of Figure 1 seen in pin7 of IC410?

The connection of pin88 and pin89 of IC350 and the connections of pin6 and pin3 of IC400 are confirmed.
The connection of pin5,9,13,17 of IC500 and the connection of IC350 are confirmed.

Is the shape of waves of Figure 2 seen between pin8 and pin9 that time of IC410?

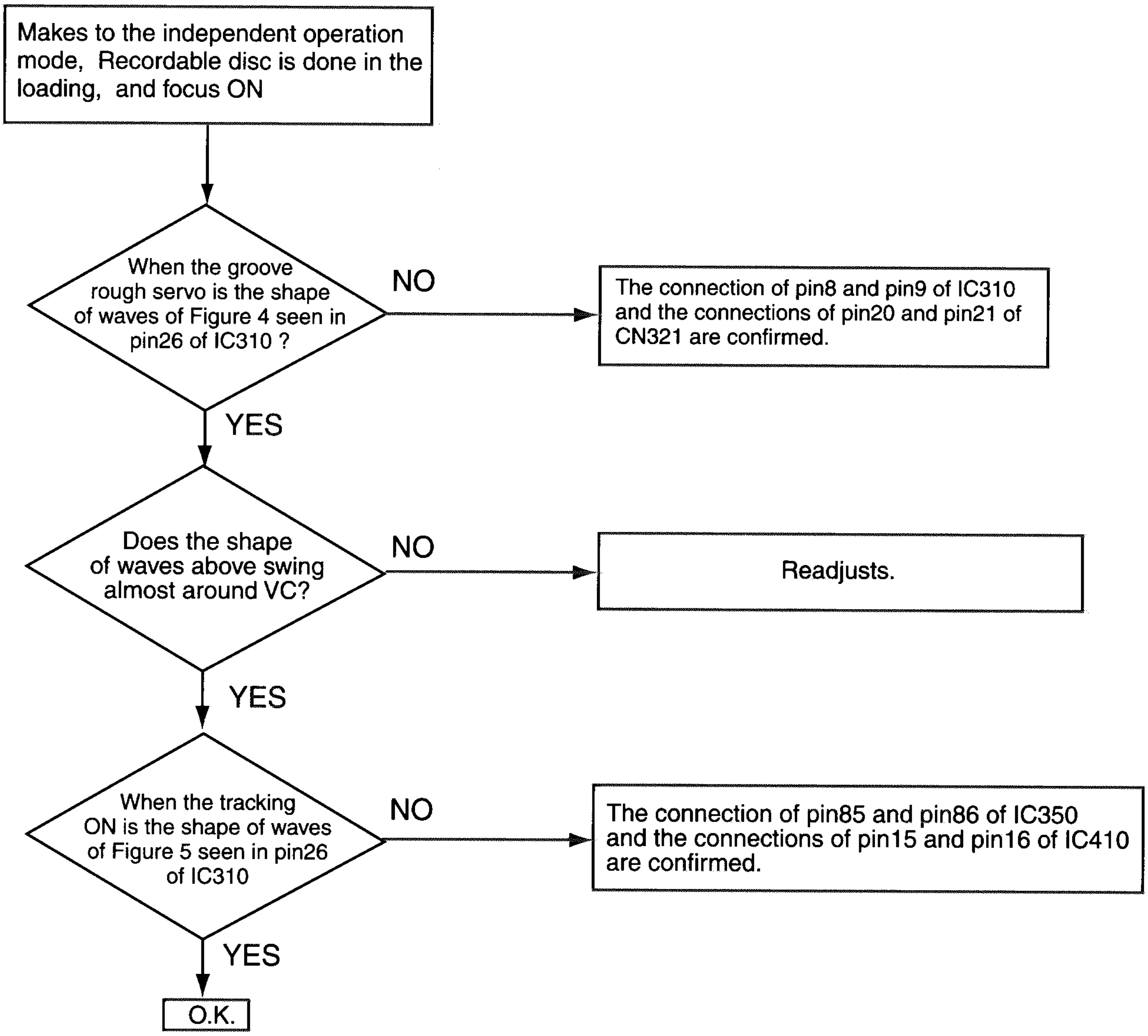
The connection of power supply terminal and pin17 of IC410 are confirmed.

When R326 is removed, the disc is done in the loading, and focus ON is done, is the shape of waves like Figure 3 seen in pin34 of IC310?

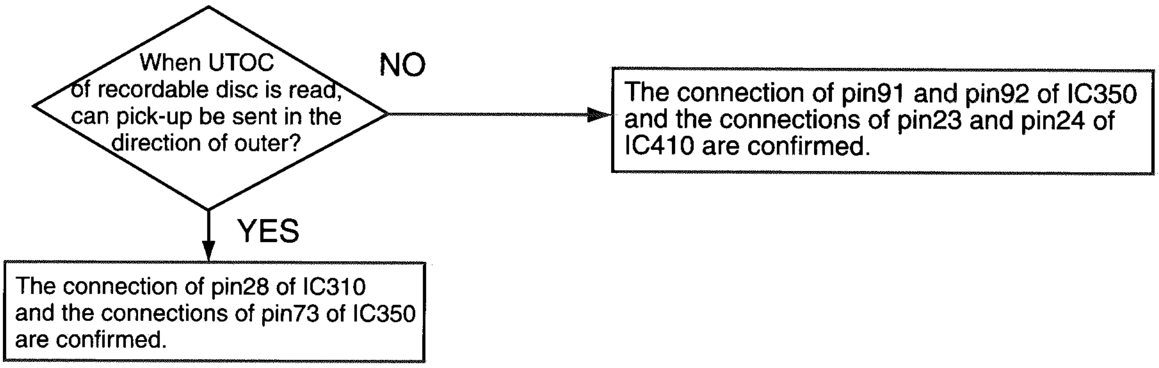
The connection of pick-up is confirmed. whether the laser emits light.

The connection of pin34 of IC310 and pin65 of IC350 are confirmed.

■Tracking section


Makes to the independent operation mode, Recordable disc is done in the loading, and focus ON
When the groove rough servo is the shape of waves of Figure 4 seen in pin26 of IC310 ?
NO
The connection of pin8 and pin9 of IC310 and the connections of pin20 and pin21 of CN321 are confirmed.
YES
Does the shape of waves above swing almost around VC?
NO
Readjusts.
YES
When the tracking ON is the shape of waves of Figure 5 seen in pin26 of IC310
NO
The connection of pin85 and pin86 of IC350 and the connections of pin15 and pin16 of IC410 are confirmed.
YES
O.K.

■Feed section


When UTOC of recordable disc is read, can pick-up be sent in the direction of outer?
NO
The connection of pin91 and pin92 of IC350 and the connections of pin23 and pin24 of IC410 are confirmed.
YES
The connection of pin28 of IC310 and the connections of pin73 of IC350 are confirmed.

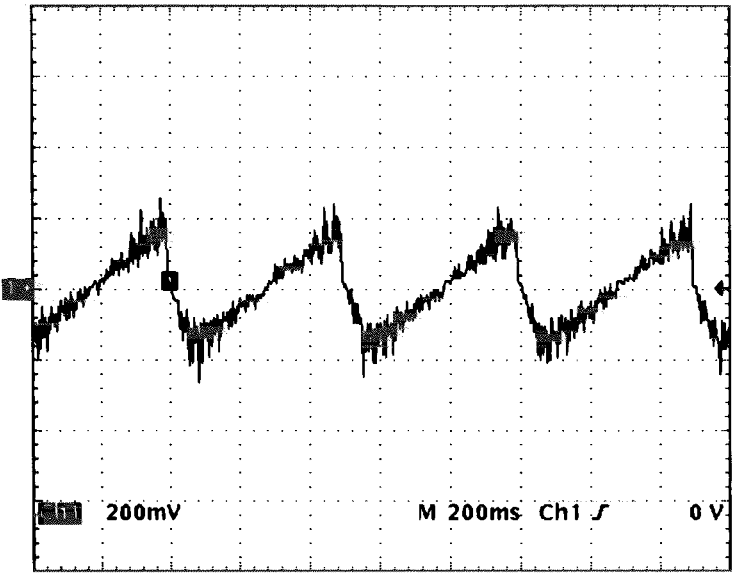


Fig.1

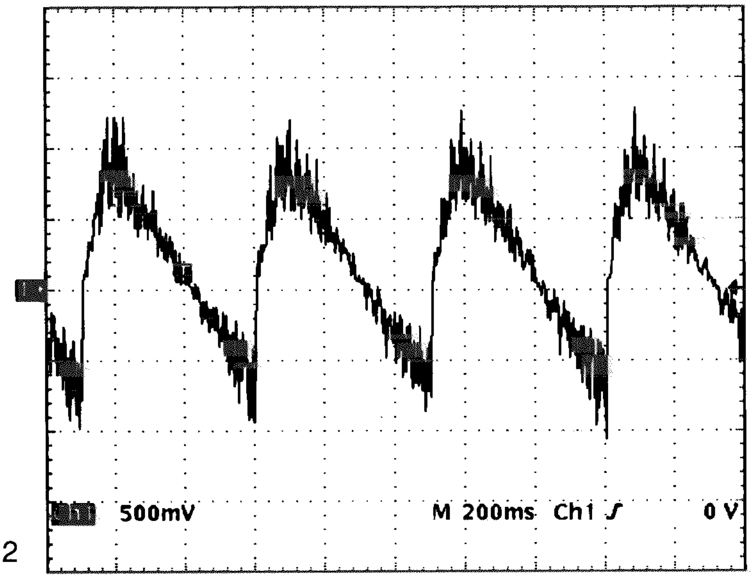


Fig.2

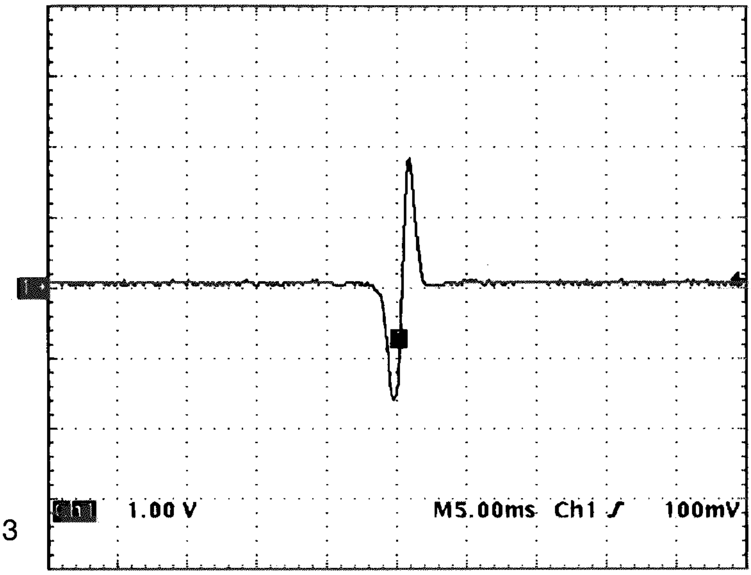


Fig.3

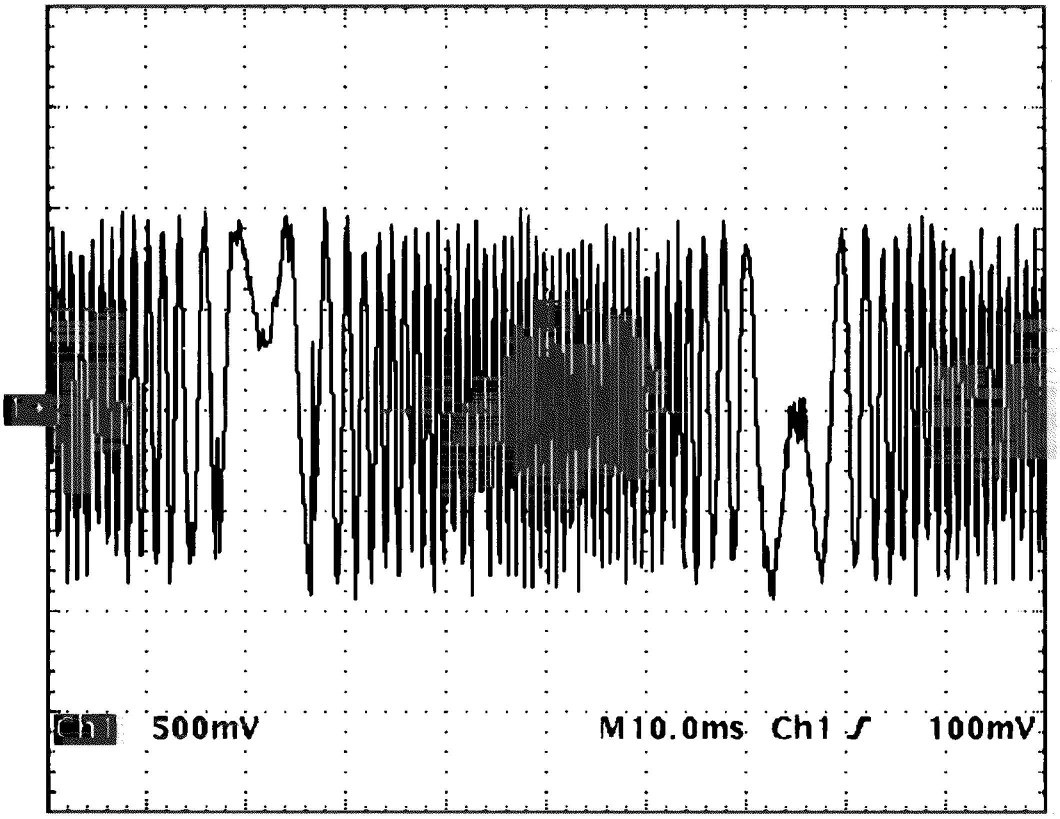


Fig.4

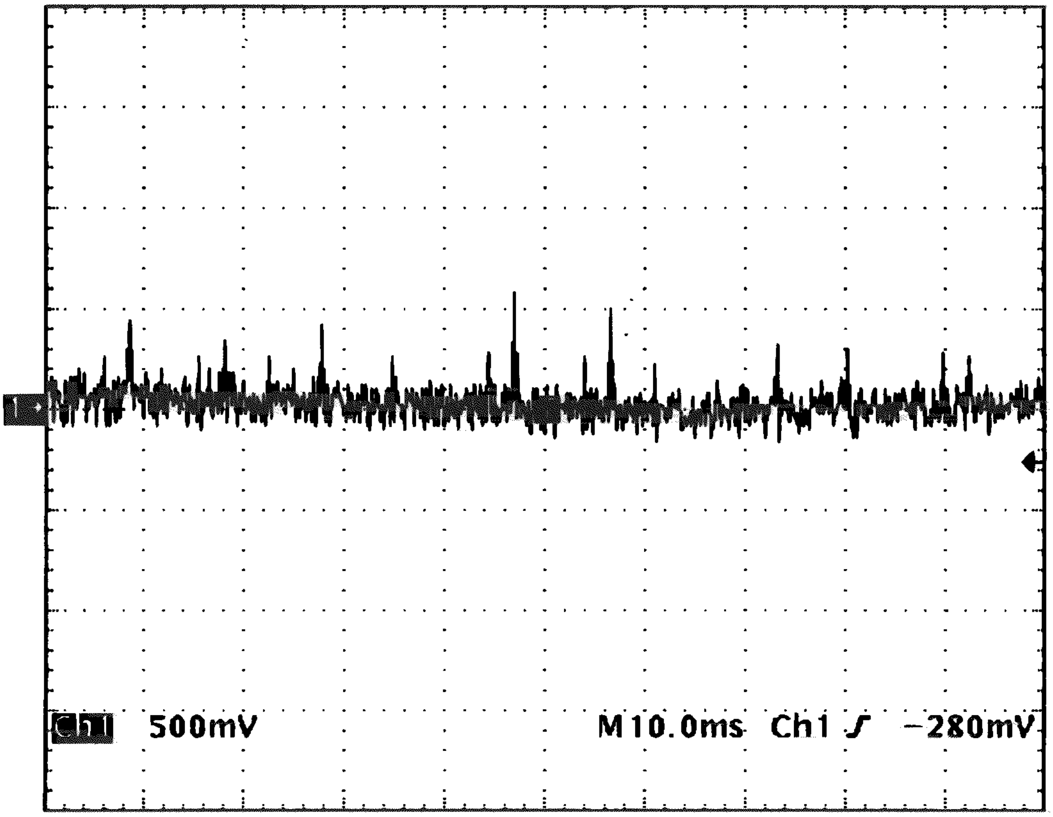


Fig.5

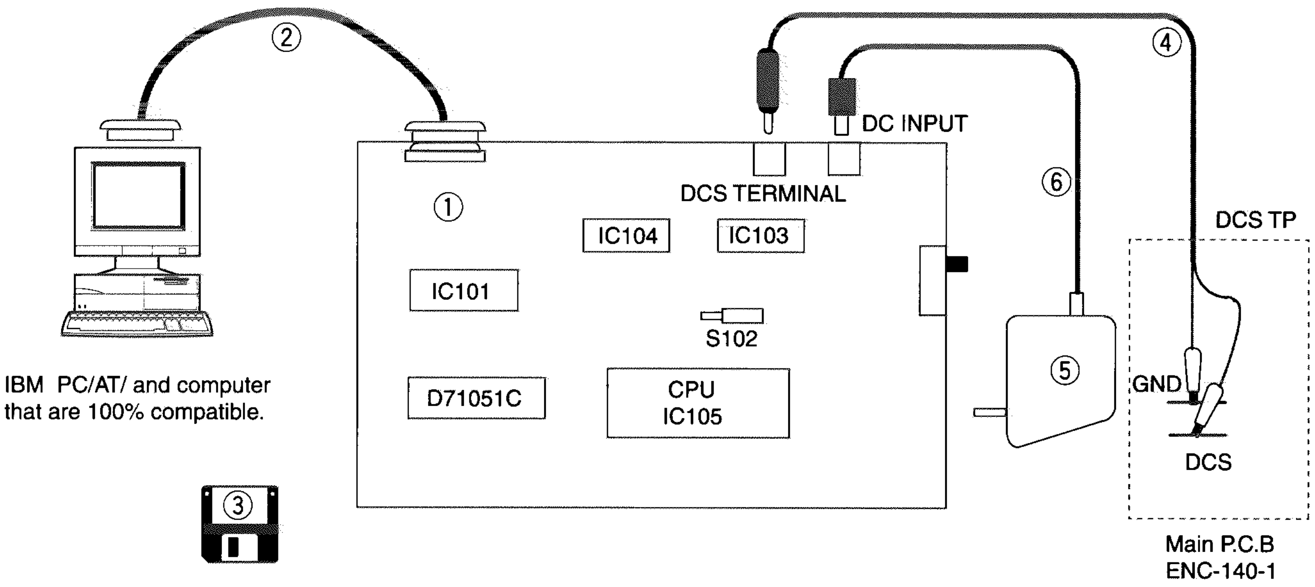
Self-diagnosis for pickup

From DCS output, this model reads automatically adjusted data for CD so that the pickup can be judged defective or not. Following shows its details.

1. Necessary items

① DCS → 232C Converting board (No.EBSJ1022)
② 232C cord (straight)
③ Floppy disc for self-diagnosis (No.EBSJ1022)
④ DCS cord
⑤ Power supply DC 6.3V (AA-SV11U)
⑥ Cord of Power supply E407992-001
⑦ CD (without scratches or damage)

2. Connection


②
①
DCS TERMINAL
DC INPUT
IC104
IC103
IC101
S102
D71051C
CPU
IC105
⑥
④
⑤
DCS TP
GND
DCS
Main P.C.B
ENC-140-1
③
IBM PC/AT/ and computer
that are 100% compatible.

3. Procedure to use CD self-diagnosis jig by IBM PC

Two com pins are frequently adopted in recent IBM AT and its substitute RS232C port.
This jig can also use both COM1 and COM2.
DEFAULT is COM1. Indicate "2" to the option only for COM2.
When COM1 is used,･･･
I AUTO 01
When COM2 is used,･･･
I AUTO 02

[NOTE]

Press ESC key to stop processing during the operation.
Contents of the attached floppy IBM self-diagnosis program VER.1.00 Execution file.
(Mistake the conection/Mistake the polarity)

4. Judgment

To judge whether pickup is defective or not, firstly process of automatic adjustment is checked by automatic adjustment flag. And, the value(automatic adjustment value for focus gain) displayed on the screen is used for its final judgment.

It is supposed that the pickup is defective or the signal path is faulty if the Flag1 or Flag0 indicates not "F" but a figure.

(See the following example.)

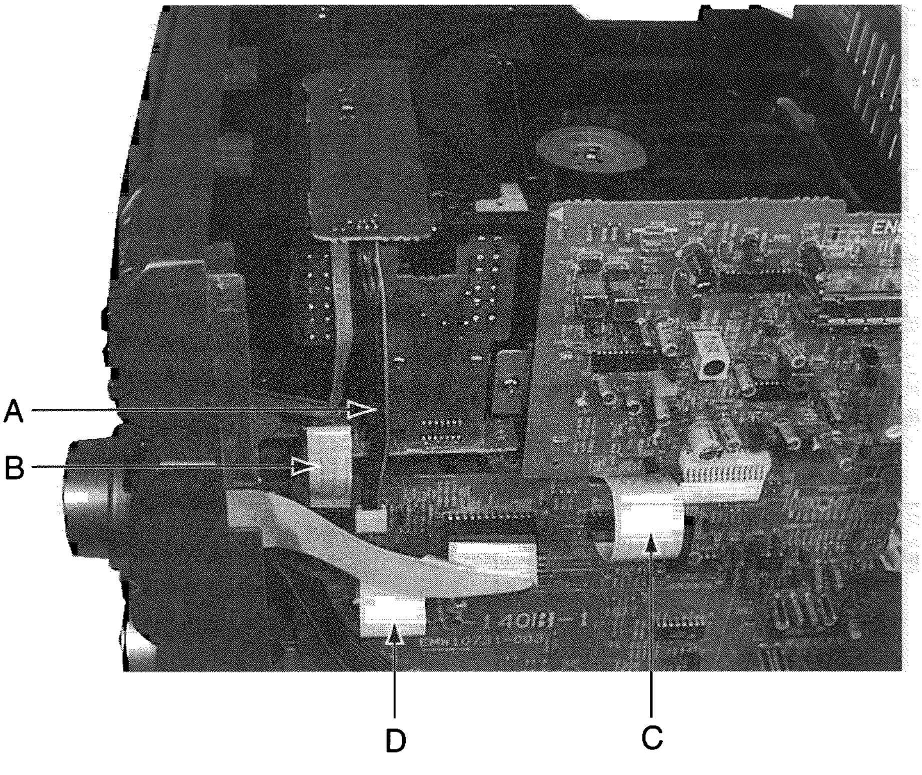
Flag1	Flag0	Details	Supposed cause
0	0	Automatic adjustment for tracking offset is failed.	The automatic adjustment is not completed. (Trouble in circuit.)
0	3	Automatic adjustment for focus offset is failed. (Disc does not rotate.)	The lens does not move. (Power supply is not turned on. Wire is cut.)
0	1	Automatic rough adjustment for focus gain is failed.	
0	7	Automatic rough adjustment for tracking gain is failed. (The focus and tracking gain are not locked though the disc rotates.)	Laser deterioration (low RF signal output). Offset beam.
0	F	Disc rotates, focus and tracking gain are locked and automatic rough adjustment for tracking gain is also completed though automatic adjustment for tracking balance is failed.	Laser deterioration (low RF signal output). Offset beam.
1	F	Automatic adjustment for focus balance is failed. (TOC is not read tough the disc rotates.)	RF signal output is low. Tracking loop is not turned on. RF jitter is too much.
3	F	Automatic rough adjustment for focus gain is failed.	
7	F	Automatic rough adjustment for focus gain is failed.	
F	F	All automatic adjustments are completed.	

The pickup is judged defective though the Flag0 and Flag1 indicate " F " and those adjustments are completed if the adjustment value exceeds 19dB.

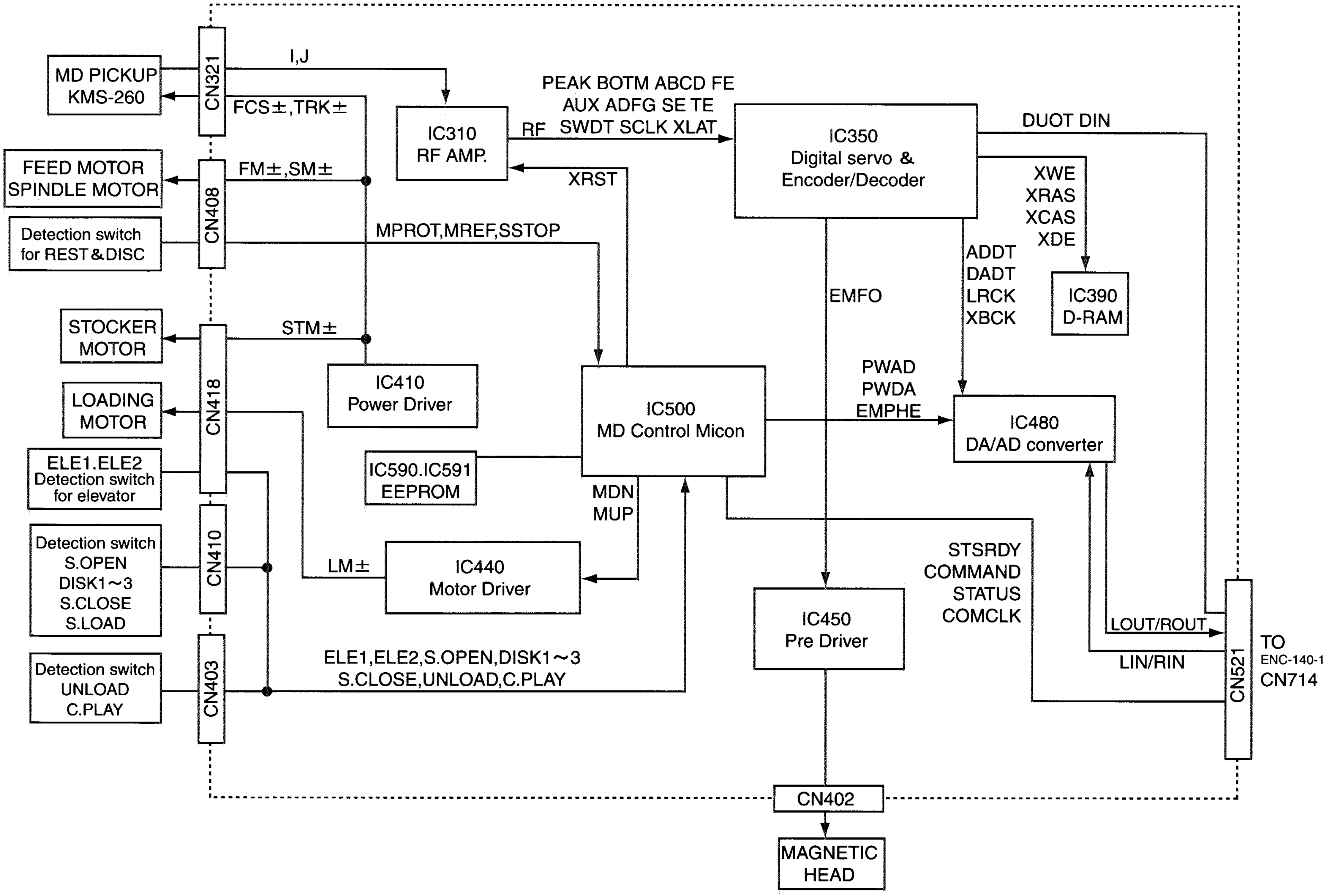
Method of checking CD and MD

The extension code is prepared for the energizing check of the CD mechanism and the MD mechanism . Please use to connect everything from each mechanism assembly to a main substrate and do the energizing check.

Extension code	Parts number
A	EWR33D-40LS
B	VWF1210-30TTB
C	VWF1217-35TTB
D	VWF1021-40TTA



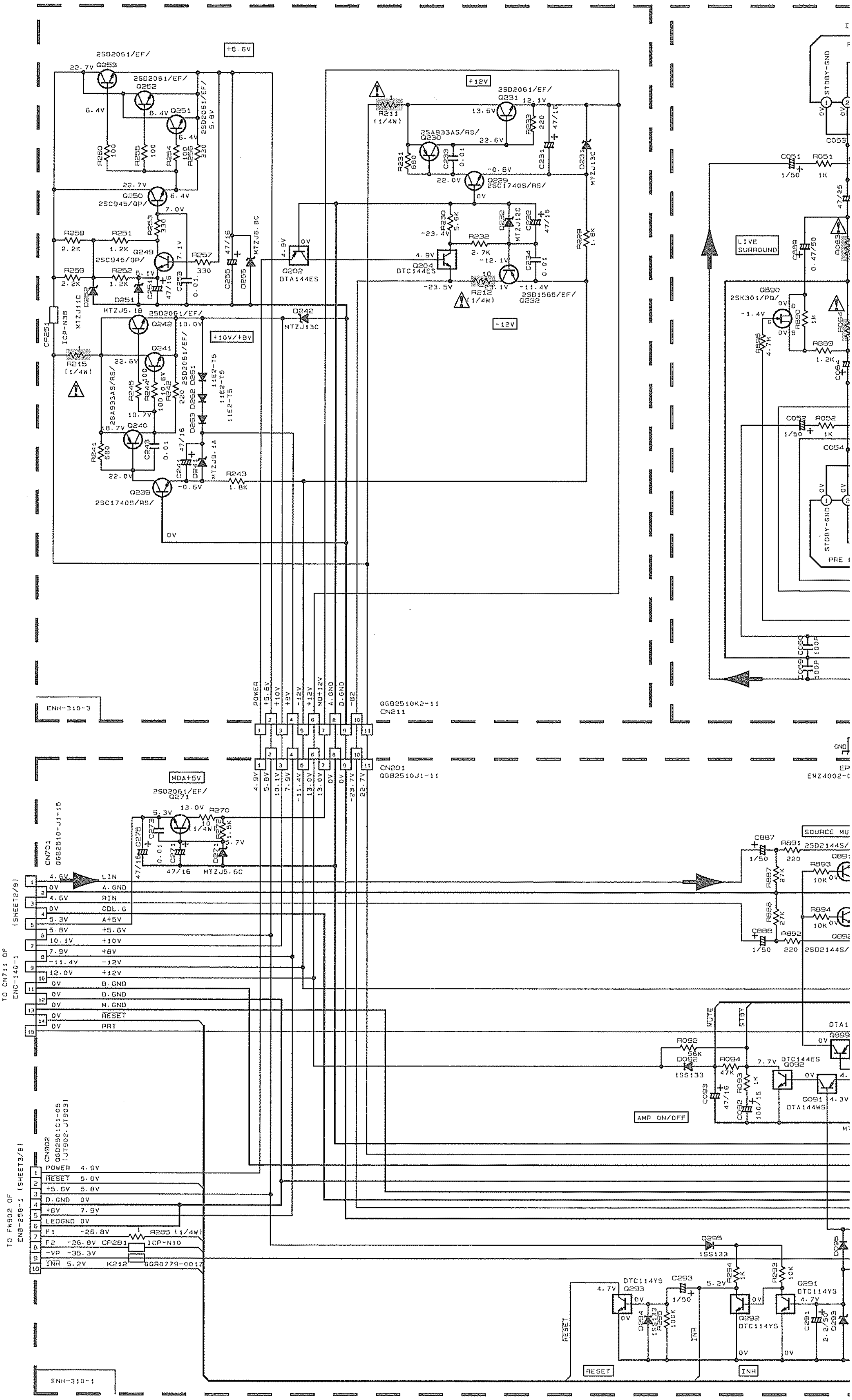
Block Diagram for MD Section


MD PICKUP
KMS-260
FEED MOTOR
SPINDLE MOTOR
Detection switch for REST&DISC
STOCKER MOTOR
LOADING MOTOR
ELE1.ELE2 Detection switch for elevator
Detection switch S.OPEN DISK1~3 S.CLOSE S.LOAD
Detection switch UNLOAD C.PLAY
CN321
CN408
CN418
CN410
CN403
I,J
FCS±,TRK±
FM±,SM±
MPROT,MREF,SSTOP
STM±
LM±
ELE1,ELE2,S.OPEN,DISK1~3
S.CLOSE,UNLOAD,C.PLAY
IC310
RF AMP.
RF
PEAK BOTM ABCD FE
AUX ADFG SE TE
SWDT SCLK XLAT
XRST
IC410
Power Driver
IC590.IC591
EEPROM
IC500
MD Control Micon
MDN
MUP
IC440
Motor Driver
IC350
Digital servo &
Encoder/Decoder
DUOT DIN
XWE
XRAS
XCAS
XDE
IC390
D-RAM
ADDT
DADT
LRCK
XBCK
EMFO
PWAD
PWDA
EMPHE
IC480
DA/AD converter
STSRDY
COMMAND
STATUS
COMCLK
IC450
Pre Driver
LOUT/ROUT
LIN/RIN
CN521
TO
ENC-140-1
CN714
CN402
MAGNETIC
HEAD

-MEMO-

Schematic Diagrams

■ Power Amplifire / Power Supply Section

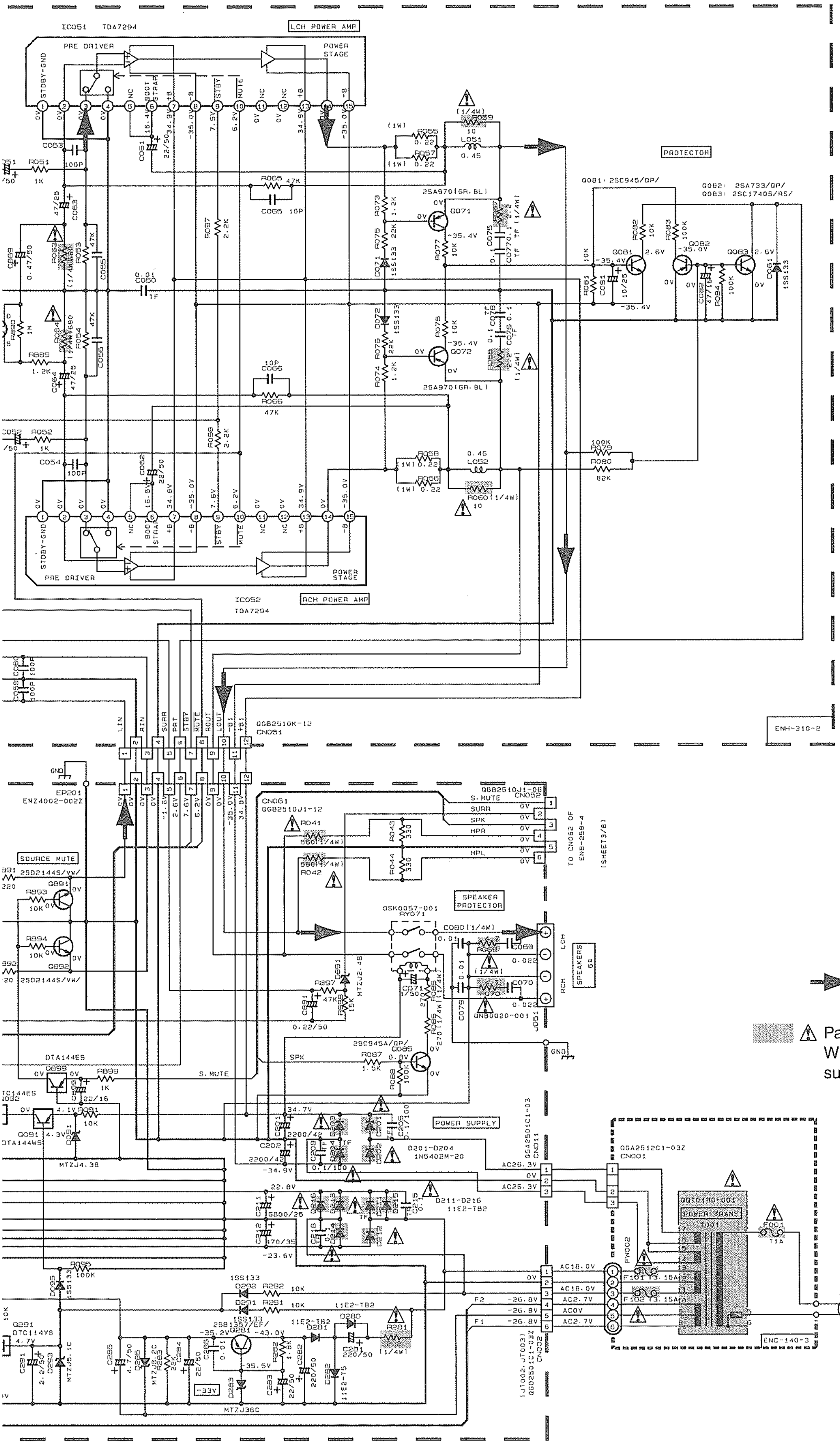

+5.6V
2SD2061/EF/
Q253
Q252
Q251
Q250
2SC945/QP/
Q249
Q242
Q241
Q240
Q239
2SC1740S/RS/
2SA933AS/RS/
CP251
ICP-N38
R215
(1/4W)
D251
D252
MTZJ11C
MTZJ5.1B
D255
MTZJ6.8C
+10V/+8V
D261
D262
D263
11E2-T5
MTZJ9.1A
Q202
DTA144ES
D242
MTZJ13C
+12V
R211
(1/4W)
Q231
Q230
Q229
Q204
DTC144ES
Q232
2SB1565/EF/
R212
(1/4W)
-12V
D231
MTZJ13C
ENH-310-3
POWER
+5.6V
+10V
+8V
-12V
+12V
MD+12V
A.GND
D.GND
-B2
QGB2510K2-11
CN211
CN201
QGB2510J1-11
MDA+5V
2SD2061/EF/
Q271
R270
MTZJ5.6C
CN701
QGB2510-J1-15
(SHEET2/8)
TO CN711 OF ENC-140-1
LIN
A.GND
RIN
CDL.G
A+5V
+5.6V
+10V
+8V
-12V
+12V
B.GND
D.GND
M.GND
RESET
PRT
CN902
QGD2501C1-05
(JT902.JT903)
TO FW902 OF ENB-298-1 (SHEET3/8)
POWER 4.9V
RESET 5.0V
+5.6V 5.8V
D.GND 0V
+8V 7.9V
LEDGND 0V
F1 -26.8V
F2 -26.8V
-VP -35.3V
INH 5.2V
CP281
ICP-N10
R285 (1/4W)
K212
QQR0779-001
ENH-310-1
STDBY-GND
LIVE SURROUND
Q890
2SK301/PQ/
SOURCE MU
2SD2144S/
AMP ON/OFF
MUTE
STBY
Q092
DTC144ES
Q091
DTA144WS
D092
1SS133
D295
1SS133
Q293
DTC114YS
Q292
DTC114YS
Q291
DTC114YS
RESET
INH
EMZ4002-
5
4
3
2
1
A
B
C
D

NOTES

1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLTMETER OR OSCILLOSCOPE WITHOUT INPUT SIGNAL.
   CONDITION-CD STOP MODE
2. UNLESS OTHERWISE SPECIFIED. RESISTORS ARE 1/6W ±5% CARBON RESISTOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITORS ARE CERMIC CAPACITOR OR MYLAR CAPACITOR.
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL INDUCTANCE VALUES ARE IN μH(m=mH).
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE (μF)/RATED VOLTAGE (V).

UNFRAMMABLE CARBON RESISTOR
FUSEBLE RESISTOR
METAL FILM RESISTOR

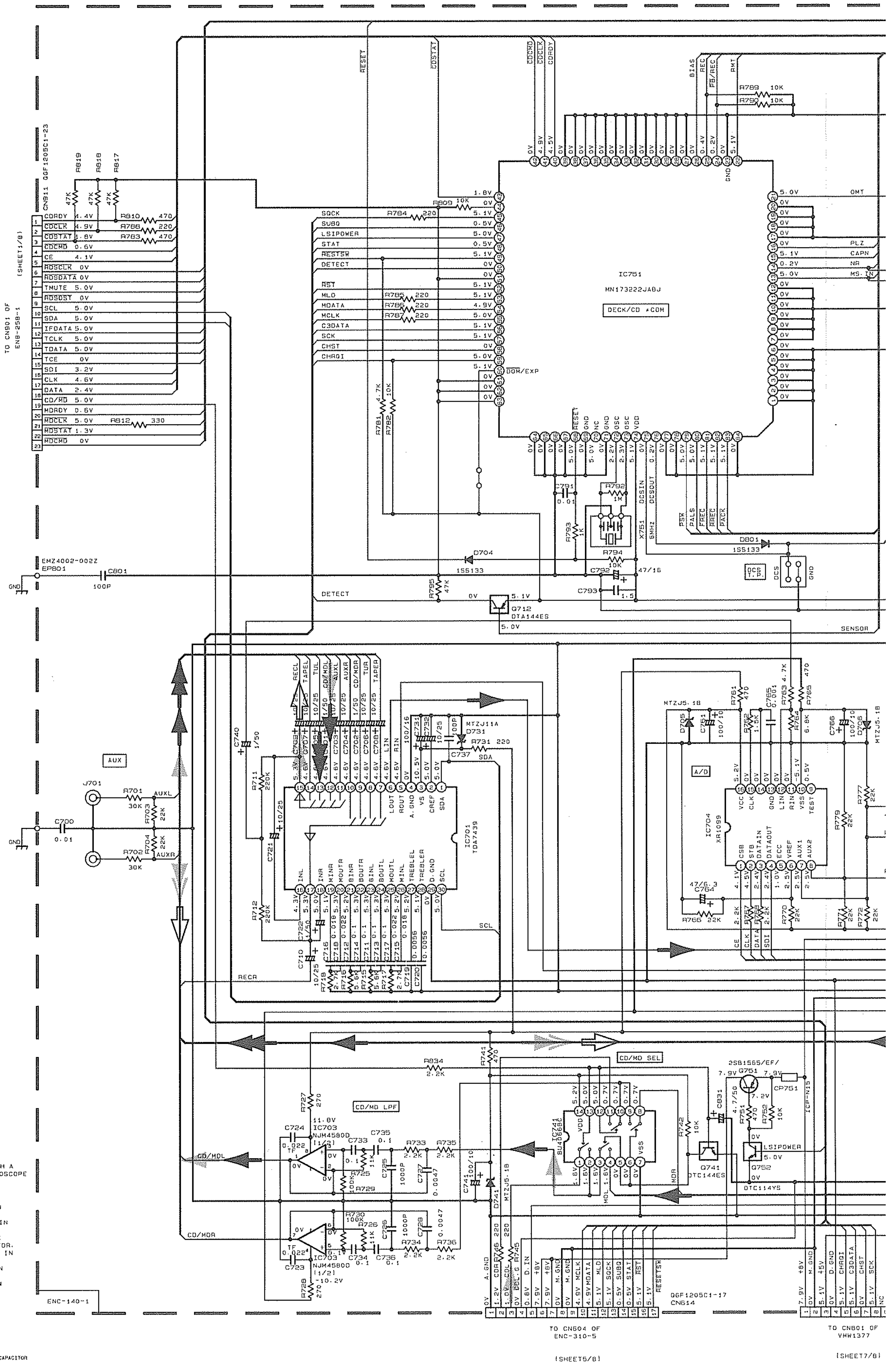
50V ±5% MYLAR CAPACITOR
NON-POLARISED ELECTROLYTIC CAPACITOR
POLYPROPYLENE CAPACITOR
POLYESTER FILM CAPACITOR


IC051 TDA7294
LCH POWER AMP
PRE DRIVER
POWER STAGE
STBY-GND
BOOT STRAP
STBY
MUTE
PROTECTOR
Q081: 2SC945/QP/
Q082: 2SA733/QP/
Q083: 2SC1740S/RS/
2SA970(GR,BL)
Q071
Q072
L051
L052
IC052 TDA7294
RCH POWER AMP
ENH-310-2
QGB2510K-12
CN051
LIN
RIN
SURR
PRT
STBY
MUTE
ROUT
LOUT
-B1
+B1
EP201
EMZ4002-002Z
SOURCE MUTE
2SD2144S/VW/
Q891
Q892
CN061
QGB2510J1-12
QGB2510J1-06
CN052
S.MUTE
SURR
SPK
HPR
HPL
TO CN062 OF ENB-258-4 (SHEET3/8)
SPEAKER PROTECTOR
QSK0057-001
RY071
LCH
RCH
SPEAKERS 6Ω
J051
QNB0020-001
GND
2SC945A/QP/
Q085
DTA144ES
Q899
S.MUTE
DTC144ES
Q092
Q091
DTA144WS
MTZJ4.3B
POWER SUPPLY
D201-D204
1N5402M-20
D211-D216
11E2-TB2
QGA2501C1-03
CN011
QGA2512C1-03Z
CN001
QQT0180-001
POWER TRANS
T001
F001
T1A
FW002
F101 T3.15A
F102 T3.15A
AC26.3V
AC25.3V
AC18.0V
AC2.7V
ACOV
ENC-140-3
AC230V
50Hz
POWER CORD
BS:QMP5530-0085LBS
EF/EN/G:QMP3900-200L
Q281
2SB1357/EF/
MTZJ36C
-33V
Q291
DTC114YS
MTZJ5.1C
(JT002,JT003)
QGD2501C1-03Z
CN002

MAIN SIGNAL

▨ ⚠ Parts are safety assurance parts. When replacing those parts make sure to use the specified one.

Cassette / CD Control Section

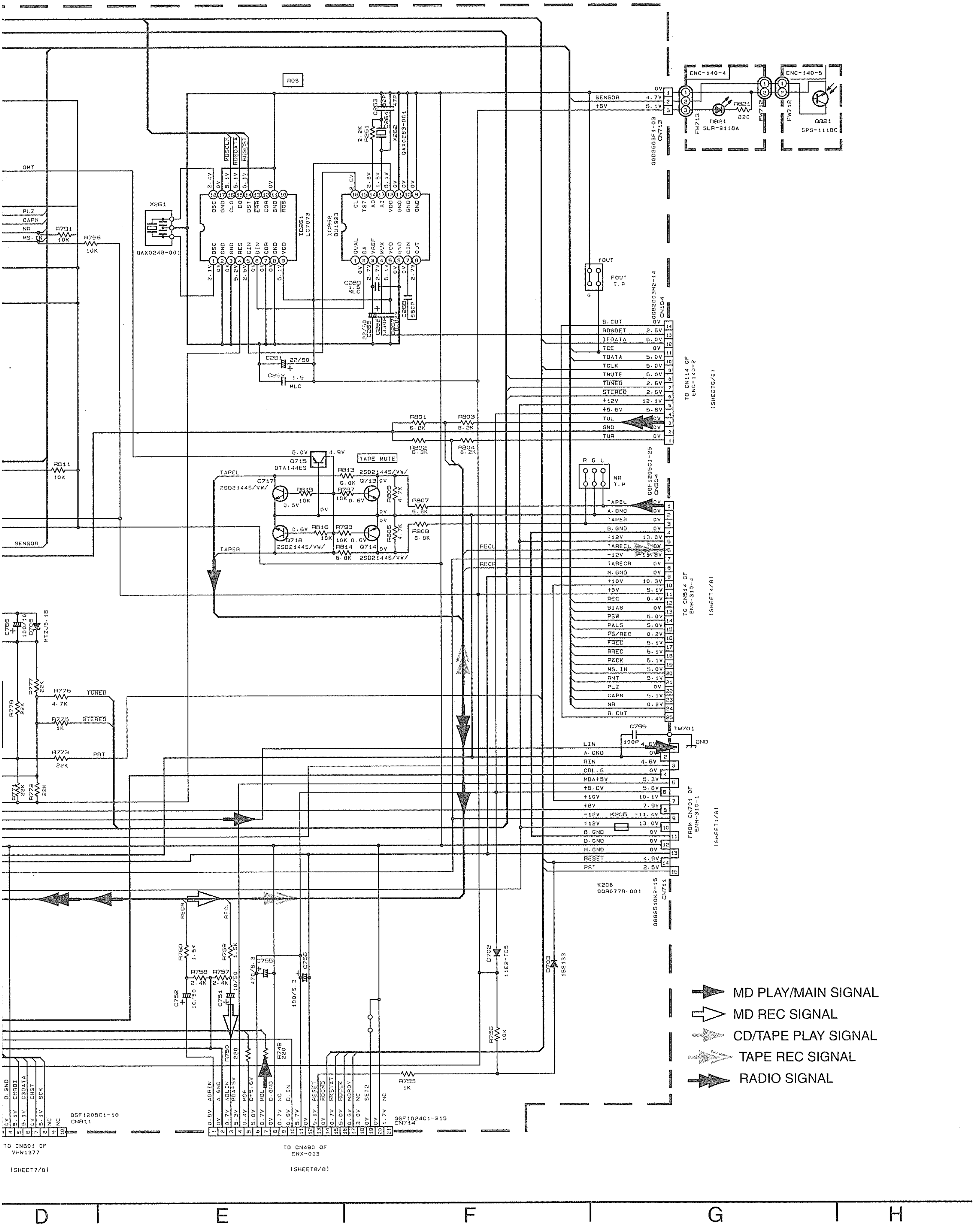

CN911 QGF1205C1-23
TO CN801 OF ENB-258-1
(SHEET1/8)
CORDY
CDCLK
CDSTAT
CDCMD
CE
MDSCLK
MDSDATA
TMUTE
MDSDST
SCL
SDA
IFDATA
TCLK
TDATA
TCE
SDI
CLK
DATA
CD/MD
MDRDY
MDCLK
MDSTAT
MDCMD
IC751
MN173222JA8J
DECK/CD •COM
X751
8MHz
DCS
D801
1SS133
D704
1SS133
Q712
DTA144ES
EMZ4002-002Z
EP801
C801
100P
GND
DETECT
SENSOR
AUX
J701
AUXL
AUXR
C700
0.01
IC701
TDA7439
A/D
IC704
XR1099
CD/MD LPF
IC703
NJM4580D
CD/MD SEL
IC741
BU4066BC
Q741
DTC144ES
Q751
2SB1565/EF/
Q752
DTC114YS
CP751
ICP-N15
LSIPOWER
CD/MDL
CD/MDR
RECR
ENC-140-1
QGF1205C1-17
CN614
TO CN604 OF
ENC-310-5
(SHEET5/8)
TO CN801 OF
VMW1377
(SHEET7/8)

NOTES

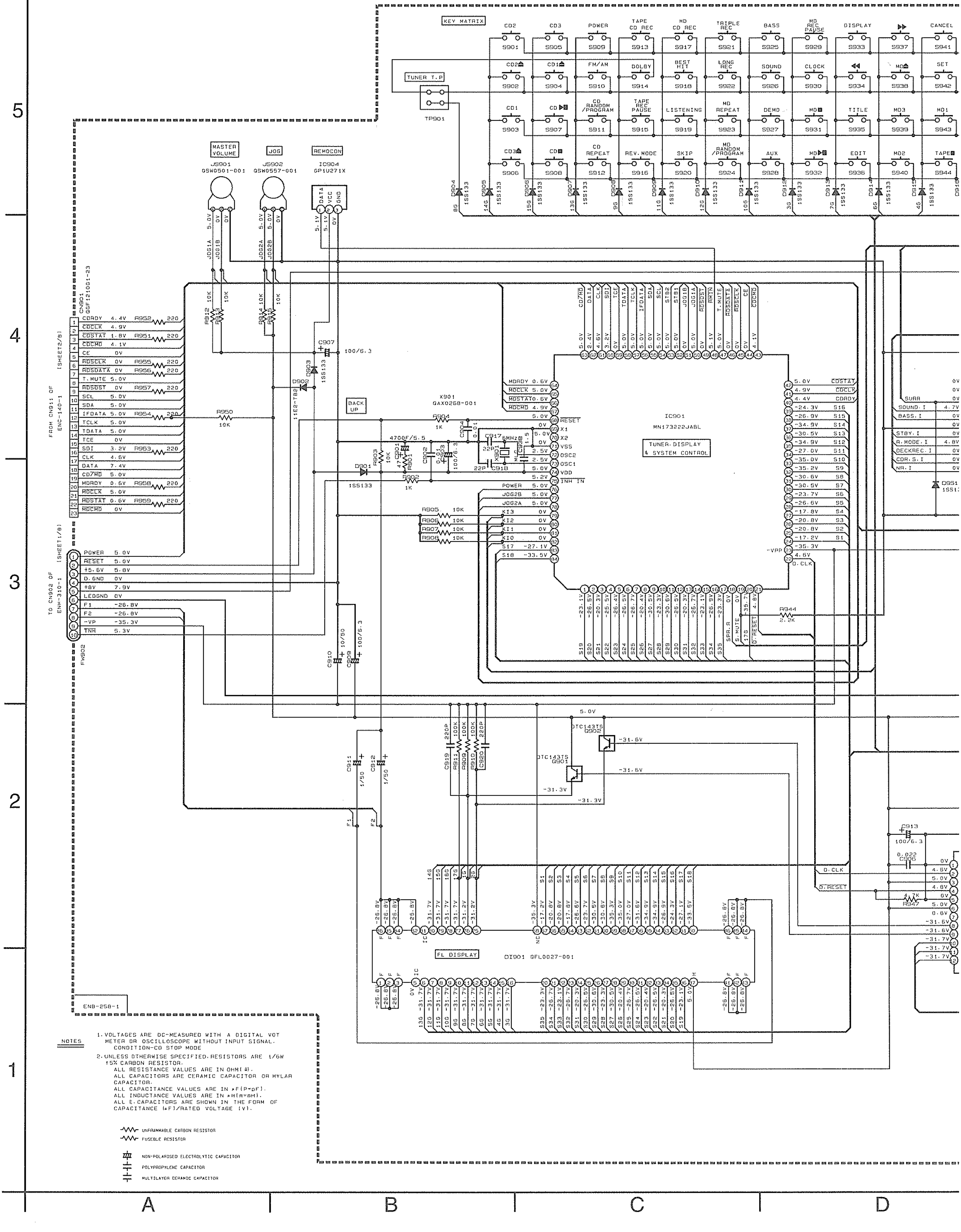
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER OR OSCILLOSCOPE WITHOUT INPUT SIGANL.
   CONDITION-CD STOP MODE
2. UNLESS OTHERWISE SPECIFIED. RESISTORS ARE 1/6W ±5% CARBON RESISTOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITORS ARE CERAMIC CAPACITOR OR MYLAR CAPACITOR.
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL INDUTANCE VALUES ARE IN μH(m=mH).
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE (μF)/RATED VOLTAGE (V).

-\/\/\/- UNFRAMMABLE CARBON RESISTOR
-\/\/\/- FUSEBLE RESISTOR

NON-POLARISED ELECTROLYTIC CAPACITOR
POLYPROPYLENE CAPACITOR
MULTILAYER CERAMIC CAPACITOR


RDS
ENC-140-4
ENC-140-5
SENSOR 4.7V
+5V 5.1V
0V
QGD2503F1-03
CN713
FW713
FW712
D821
SLR-9118A
R821
820
Q821
SPS-1118C
OMT
PLZ
CAPN
NR
MS. IN
R791 10K
R796 10K
X261
QAX0248-001
IC261
LC7073
OSC GND CLO DO DST ERR COR GND RDS
OSC GND GND RES CIN DIN COR GND VDD
RDSCLK
RDSDATA
RDSDST
IC262
BU1923
CL TS7 XO XI VDD GND GND GND
QUAL DA VREF MUX VDD GND CIN OUT
R261 2.2K
C263 82P
C264 47P
X262
QAX0263-001
C269 MLC
C265 22/50
C266 330P
C267 0.022
C268 560P
C261 22/50
C262 1.5 MLC
fOUT
FOUT T.P
G
QGB2003M2-14
CN104
B.CUT 0V
RDSDET 2.5V
IFDATA 6.0V
TCE 0V
TDATA 5.0V
TCLK 5.0V
TMUTE 5.0V
TUNED 2.6V
STEREO 2.6V
+12V 12.1V
+5.6V 5.8V
TUL 0V
GND 0V
TUR 0V
TO CN114 OF ENC-140-2
(SHEET6/8)
R801 6.8K
R803 8.2K
R802 6.8K
R804 8.2K
5.0V
4.9V
Q715
DTA144ES
TAPE MUTE
TAPEL
TAPER
Q717 2SD2144S/VW/
Q718 2SD2144S/VW/
Q713 2SD2144S/VW/
Q714 2SD2144S/VW/
R813 6.8K
R815 10K
R797 10K
R816 10K
R798 10K
R814 6.8K
R805 4.7K
R806 4.7K
R807 6.8K
R808 6.8K
R811 10K
SENSOR
R G L
NR T.P
QGF1205C1-25
CN504
TAPEL 0V
A.GND 0V
TAPER 0V
B.GND 0V
+12V 13.0V
TARECL 0V
-12V -11.8V
TARECR 0V
M.GND 0V
+10V 10.3V
+5V 5.1V
REC 0.4V
BIAS 0V
PSW 5.0V
PALS 5.0V
PB/REC 0.2V
FREC 5.1V
RREC 5.1V
PACK 5.1V
MS.IN 5.0V
RMT 5.1V
PLZ 0V
CAPN 5.1V
NR 0.2V
B.CUT
TO CN514 OF ENH-310-4
(SHEET4/8)
RECL
RECR
C766 100/10
D705 MTZJ5.1B
R777 22K
R779 22K
R776 4.7K
TUNED
R775 1K
STEREO
R773 22K
PRT
R771 22K
R772 22K
C799 100P
TW701
GND
LIN 4.6V
A.GND 0V
RIN 4.6V
COL.G 0V
MDA+5V 5.3V
+5.6V 5.8V
+10V 10.1V
+8V 7.9V
-12V -11.4V
+12V 13.0V
K206
B.GND 0V
D.GND 0V
M.GND 0V
RESET 4.9V
PRT 2.5V
FROM CN701 OF ENH-310-1
(SHEET1/8)
K206 QQR0779-001
QGB2510K2-15
CN711
RECR
RECL
R760 1.5K
R759 1.5K
R758 2.4K
R757 2.4K
C752 10/50
C751 10/50
C755 470/6.3
C756 100/6.3
R750 220
R749 220
D702 11E2-TB5
D703 1SS133
R756 10K
R755 1K
D.GND CHRDI C3DATA CHST SCK NC NC
0V 5.1V 5.1V 0V 5.1V
QGF1205C1-10
CN811
TO CN801 OF VMW1377
(SHEET7/8)
ADRIN A.GND ADLIN MDA+5V MDR D+5.6V MDL D.GND NC D.IN RESET MDCMD RKSTAT MDCLK MDRDY NC SET2 NC
0.5V 0V 0.7V 5.3V 0.4V 5.0V 0.7V 0V 0.7V 0.5V 5.7V 0V 5.1V 0V 0.7V 5.0V 0.6V 3.0V 0V 0V 1.7V
QGF1024C1-215
CN714
TO CN490 OF ENX-023
(SHEET8/8)
MD PLAY/MAIN SIGNAL
MD REC SIGNAL
CD/TAPE PLAY SIGNAL
TAPE REC SIGNAL
RADIO SIGNAL
D
E
F
G
H

Operation Switch / System Control Section


KEY MATRIX
CD2
CD3
POWER
TAPE CD REC
MD CD REC
TRIPLE REC
BASS
MD REC PAUSE
DISPLAY
CANCEL
S901
S905
S909
S913
S917
S921
S925
S929
S933
S937
S941
TUNER T.P
TP901
FM/AM
DOLBY
BEST HIT
LONG REC
SOUND
CLOCK
SET
CD1
CD RANDOM /PROGRAM
TAPE REC PAUSE
LISTENING
MD REPEAT
DEMO
TITLE
MD3
MD1
CD REPEAT
REV.MODE
SKIP
MD RANDOM /PROGRAM
AUX
EDIT
MD2
1SS133
MASTER VOLUME
JS901
QSW0501-001
JOG
JS902
QSW0557-001
REMOCON
IC904
GP1U271X
DATA
VCC
GND
CN901
QGF1210G1-23
FROM CN911 OF ENC-140-1 [SHEET2/8]
CORDY
COCLK
COSTAT
COCMD
CE
RDSCLK
RDSDATA
T.MUTE
RDSDST
SCL
SDA
IFDATA
TCLK
TDATA
TCE
SDI
CLK
DATA
CD7MD
MDRDY
MDCLK
MDSTAT
MDCMD
TO CN902 OF ENH-310-1 [SHEET1/8]
FW902
POWER
RESET
+5.6V
D.GND
+8V
LEDGND
F1
F2
-VP
TNR
BACK UP
X901
QAX0268-001
IC901
MN173222JABL
TUNER.DISPLAY & SYSTEM CONTROL
RESET
X1
X2
VSS
OSC2
OSC1
VDD
INH IN
DTC143TS
Q902
Q901
FL DISPLAY
DI901 QFL0027-001
D.CLK
D.RESET
SURR
SOUND.I
BASS.I
STBY.I
R.MODE.I
DECKREC.I
COR.S.I
NR.I
D951
C913
C906
R947
ENB-258-1
5
4
3
2
1
A
B
C
D

NOTES

1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOT METER OR OSCILLOSCOPE WITHOUT INPUT SIGNAL.
   CONDITION-CD STOP MODE
2. UNLESS OTHERWISE SPECIFIED, RESISTORS ARE 1/6W ±5% CARBON RESISTOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITORS ARE CERAMIC CAPACITOR OR MYLAR CAPACITOR.
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL INDUCTANCE VALUES ARE IN μH(m=mH).
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE (μF)/RATED VOLTAGE (V).

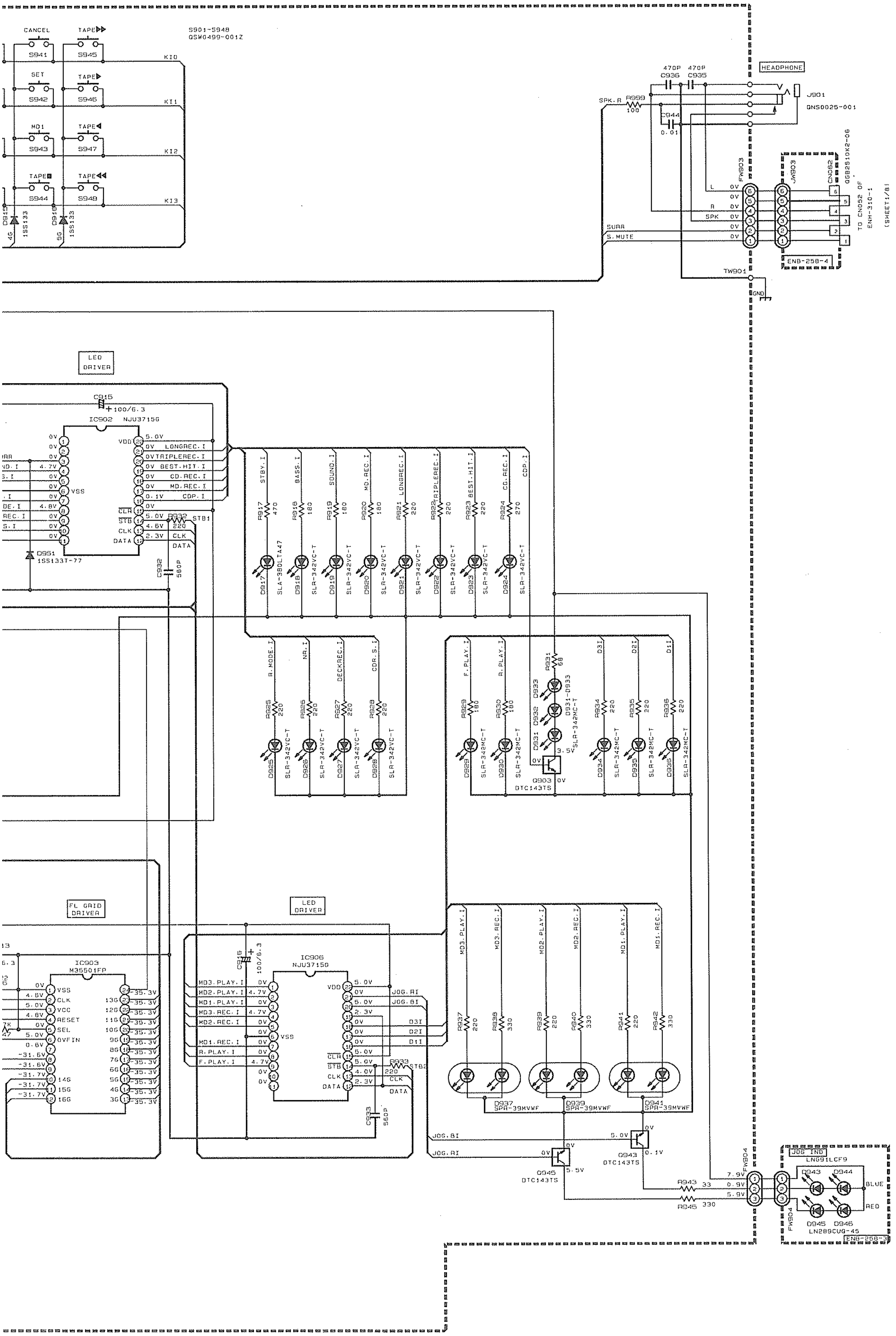
UNFRAMMABLE CARBON RESISTOR

FUSEBLE RESISTOR

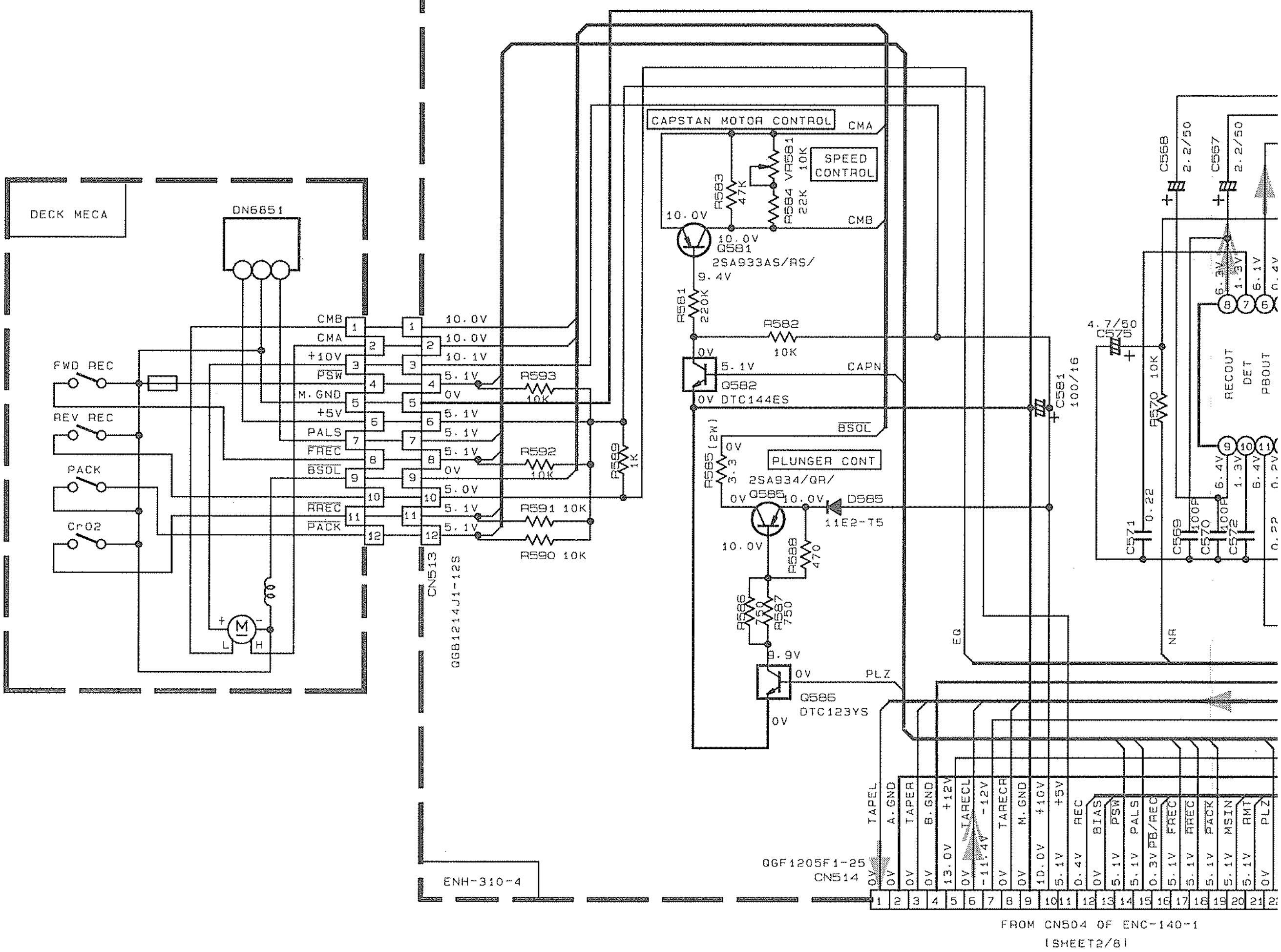
NON-POLARISED ELECTROLYTIC CAPACITOR

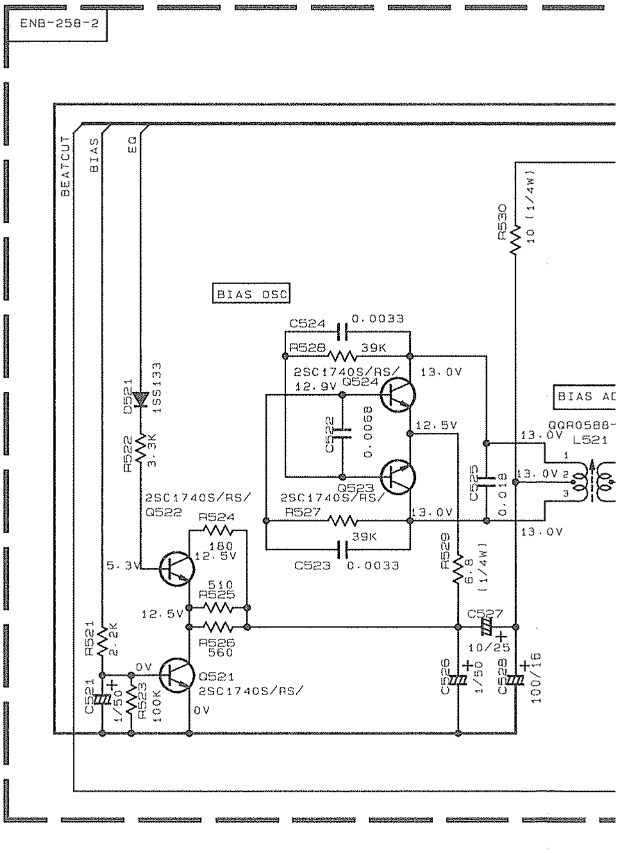
POLYPROPYLENE CAPACITOR

MULTILAYER CERAMIC CAPACITOR


CANCEL
TAPE▶▶
S941
S945
SET
TAPE▶
S942
S946
MD1
TAPE◀
S943
S947
TAPE■
TAPE◀◀
S944
S948
S901-S948
QSW0499-001Z
KI0
KI1
KI2
KI3
D915
1SS133
D916
1SS133
4G
5G
HEADPHONE
470P
470P
C936
C935
SPK.R
R999
100
C944
0.01
J901
QNS0025-001
FW903
JW903
CN052
QGB2510K2-06
TO CN052 OF
ENH-310-1
(SHEET1/8)
L
R
SPK
SURR
S.MUTE
0V
ENB-258-4
TW901
GND
LED
DRIVER
C915
100/6.3
IC902
NJU3715G
VDD
VSS
CLR
STB
CLK
DATA
5.0V
LONGREC.I
TRIPLEREC.I
BEST.HIT.I
CD.REC.I
MD.REC.I
0.1V
CDP.I
4.7V
4.8V
4.6V
2.3V
R932
220
STB1
D951
1SS133T-77
C932
560P
STBY.I
BASS.I
SOUND.I
MD.REC.I
LONGREC.I
TRIPLEREC.I
BEST.HIT.I
CD.REC.I
CDP.I
R917
470
R918
180
R919
180
R920
180
R921
220
R922
220
R923
220
R924
270
D917
SLA-380LTA47
D918
SLR-342VC-T
D919
SLR-342VC-T
D920
SLR-342VC-T
D921
SLR-342VC-T
D922
SLR-342VC-T
D923
SLR-342VC-T
D924
SLR-342VC-T
R.MODE.I
NR.I
DECKREC.I
CDR.S.I
R925
220
R926
220
R927
220
R928
220
D925
SLR-342VC-T
D926
SLR-342VC-T
D927
SLR-342VC-T
D928
SLR-342VC-T
F.PLAY.I
R.PLAY.I
D3I
D2I
D1I
R929
180
R930
180
R931
68
D933
D932
D931
D931-D933
SLR-342MC-T
3.5V
Q903
DTC143TS
R934
220
R935
220
R936
220
D929
SLR-342MC-T
D930
SLR-342MC-T
D934
SLR-342MC-T
D935
SLR-342MC-T
D936
SLR-342MC-T
FL GRID
DRIVER
IC903
M35501FP
VSS
CLK
VCC
RESET
SEL
OVFIN
-35.3V
-31.6V
-31.7V
13G
12G
11G
10G
9G
8G
7G
6G
5G
4G
3G
14G
15G
16G
LED
DRIVER
C916
100/6.3
IC906
NJU3715G
MD3.PLAY.I
MD2.PLAY.I
MD1.PLAY.I
MD3.REC.I
MD2.REC.I
MD1.REC.I
R.PLAY.I
F.PLAY.I
JOG.RI
JOG.BI
D3I
D2I
D1I
R933
220
STB2
CLK
DATA
C933
560P
MD3.PLAY.I
MD3.REC.I
MD2.PLAY.I
MD2.REC.I
MD1.PLAY.I
MD1.REC.I
R937
220
R938
330
R939
220
R940
330
R941
220
R942
330
D937
SPR-39MVWF
D939
SPR-39MVWF
D941
SPR-39MVWF
JOG.BI
JOG.RI
Q943
DTC143TS
Q945
DTC143TS
5.0V
0.1V
5.5V
R943
33
R945
330
7.9V
0.9V
5.9V
FW904
JOG IND
LNG91LCF9
D943
D944
D945
D946
BLUE
RED
LN289CUG-45
ENB-258-3

Cassette Deck Section


5
4
3
DECK MECA
DN6851
FWD REC
REV REC
PACK
CrO2
M
L
H
CMB
CMA
+10V
PSW
M.GND
+5V
PALS
FREC
BSOL
RREC
PACK
CN513
QGB1214J1-12S
10.0V
10.0V
10.1V
5.1V
0V
5.1V
5.1V
5.1V
0V
5.0V
5.1V
5.1V
R593 10K
R592 10K
R591 10K
R590 10K
R589 1K
CAPSTAN MOTOR CONTROL
CMA
CMB
SPEED CONTROL
R583 47K
VR581 10K
R584 22K
10.0V
Q581
2SA933AS/RS/
9.4V
R581 220K
R582 10K
Q582 DTC144ES
5.1V
CAPN
BSOL
R585 (2W) 3.3
PLUNGER CONT
2SA934/QR/
Q585
D585 11E2-T5
R588 470
R586 750
R587 750
9.9V
Q586 DTC123YS
PLZ
C581 100/16
EQ
NR
C568 2.2/50
C557 2.2/50
C575 4.7/50
R570 10K
RECOUT DET PBOUT
C571 0.22
C569 100P
C570 100P
C572 0.22
ENH-310-4
QGF1205F1-25
CN514
TAPEL
A.GND
TAPER
B.GND
+12V
TARECL
-12V
TARECR
M.GND
+10V
+5V
REC
BIAS
PSW
PALS
PB/REC
FREC
RREC
PACK
MSIN
RMT
PLZ
0V
13.0V
-11.4V
10.0V
5.1V
0.4V
0.3V
FROM CN504 OF ENC-140-1 (SHEET2/8)


ENB-258-2
BEATCUT
BIAS
EQ
BIAS OSC
C524 0.0033
R528 39K
2SC1740S/RS/ Q524
12.9V
13.0V
C522 0.0068
12.5V
Q523 2SC1740S/RS/
R527 39K
C523 0.0033
C525 0.018
R530 10 (1/4W)
BIAS ADJ
QQR0588-
L521
13.0V
D521 1SS133
R522 3.3K
2SC1740S/RS/ Q522
R524 180
12.5V
5.3V
R525 510
R526 560
R529 6.8 (1/4W)
C527 10/25
R521 2.2K
C521 1/50
R523 100K
Q521 2SC1740S/RS/
C526 1/50
C528 100/16
0V

NOTES

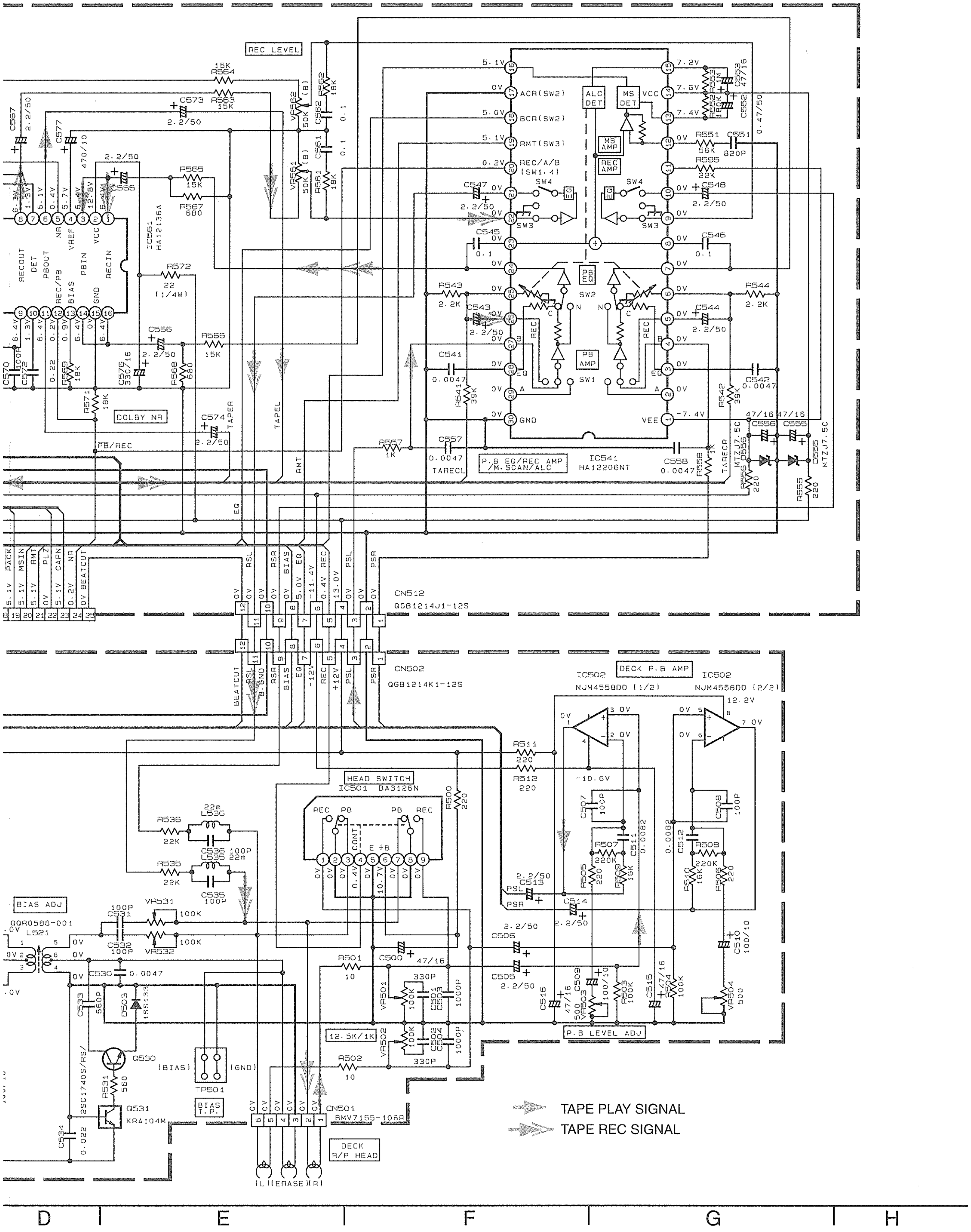
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER OR OSCILLOSCOPE WITHOUT INPUT SIGNAL.
   CONDITION - TAPE STOP MODE
2. UNLESS OTHERWISE SPECIFIIED. RESISTORS ARE 1/6W ±5% CARBON RESISTOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITORS ARE CERAMIC CAPACITOR OR MYLAR CAPACITOR.
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL INDUCTANCE VALUES ARE IN μH(m=mH).
   ALL E. CAPACITORS AARE SHOWN IN THE FORM OF CAPACITANCE (μF)/RATED VOLTAGE (V).

UNFRAMMABLE CARBON RESISTOR
FUSEBLE RESISTOR

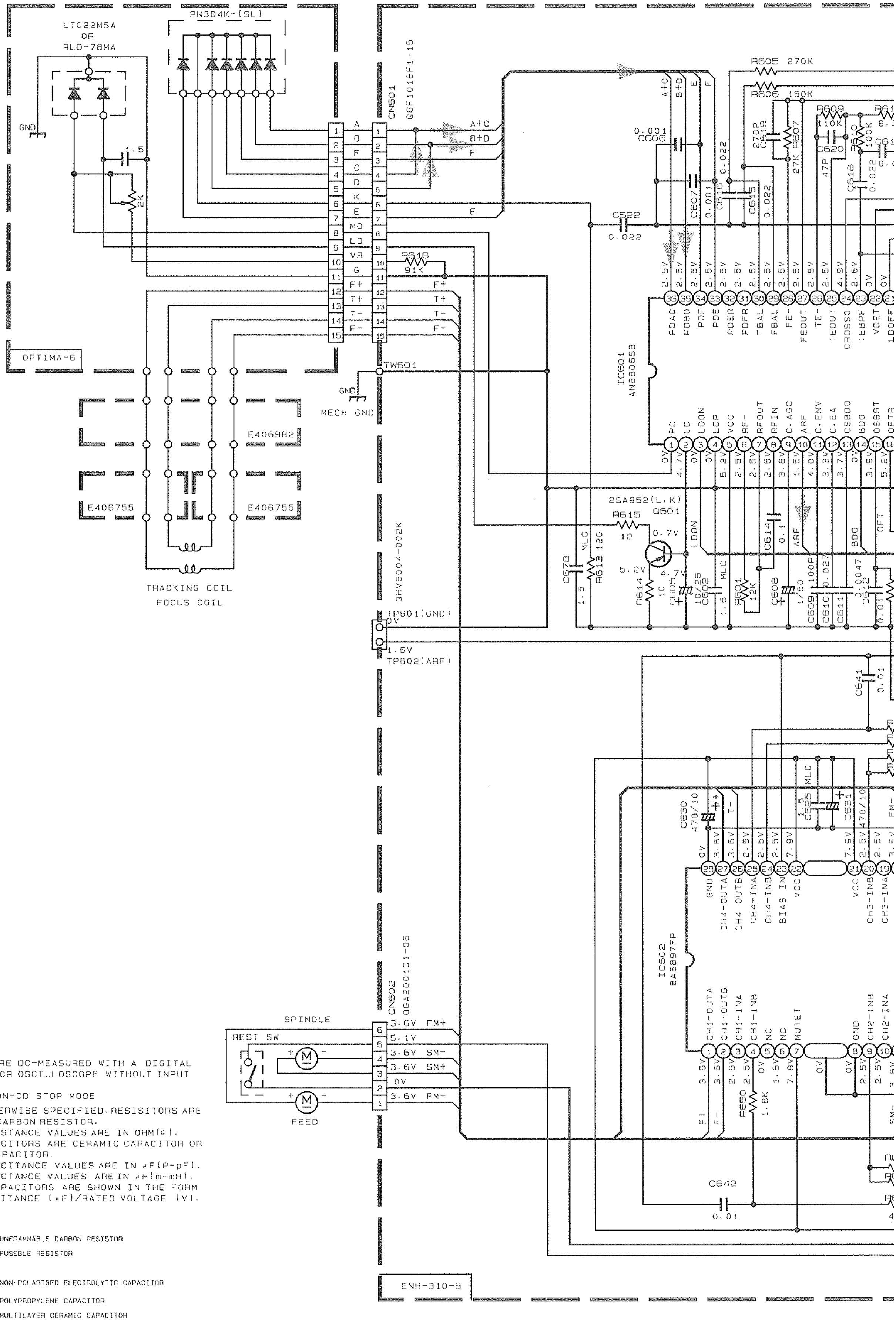
NON-POLARISED ELECTROLYTIC CAPACITOR
POLYPROPYLENE CAPACITOR

2
1

A B C D


REC LEVEL
DOLBY NR
IC561 HA12136A
RECOUT DET PBOUT NR VREF PBIN VCC RECIN
REC/PB BIAS GND
R564 15K
R563 15K
C573 2.2/50
C567 2.2/50
C577 470/10
C565 2.2/50
R565 15K
R567 680
R572 22 (1/4W)
C566 2.2/50
R566 15K
C575 330/16
R568 680
C570 100P
C572
R569 18K
R571 18K
C574 2.2/50
PB/REC
TAPER
TAPEL
RMT
EQ
VR562 50K (B)
VR561 50K (B)
R562 18K
R561 18K
C562 0.1
C561 0.1
IC541 HA12206NT
P.B EQ/REC AMP /M.SCAN/ALC
ACR(SW2)
BCR(SW2)
RMT(SW3)
REC/A/B (SW1.4)
ALC DET
MS DET
MS AMP
REC AMP
PB EQ
PB AMP
SW1
SW2
SW3
SW4
VCC
GND
VEE
5.1V
7.2V
7.6V
7.4V
-7.4V
C547 2.2/50
C548 2.2/50
C545 0.1
C546 0.1
R543 2.2K
R544 2.2K
C543 2.2/50
C544 2.2/50
C541 0.0047
C542 0.0047
R541 39K
R542 39K
R551 56K
C551 820P
R595 22K
R552 180K
R553 1M
C553 47/16
C552 0.47/50
C556 47/16
C555 47/16
D556 MTZJ7.5C
D555 MTZJ7.5C
R556 220
R555 220
R557 1K
C557 0.0047
TARECL
C558 0.0047
R558 1K
TARECR
PACK MSIN RMT PLZ CAPN NR BEATCUT
RSL RSR BIAS EQ REC PSL PSR
CN512 QGB1214J1-12S
CN502 QGB1214K1-12S
BEATCUT RSL 8.GND RSR BIAS EQ -12V REC +12V PSL PSR
IC502 NJM4558DD (1/2)
IC502 NJM4558DD (2/2)
DECK P.B AMP
12.2V
-10.6V
R511 220
R512 220
C507 100P
C508 100P
C511 0.0082
C512 0.0082
R507 220K
R508 220K
R505 220
R506 220
R509 16K
R510 16K
C513 2.2/50
C514 2.2/50
PSL
PSR
C506 2.2/50
C505 2.2/50
C516 47/16
C509 100/10
C515 47/16
C510 100/10
VR503 500
R503 100K
R504 100K
VR504 500
P.B LEVEL ADJ
HEAD SWITCH
IC501 BA3126N
REC PB PB REC
CONT
E +B
10.7V
R500 220
R501 10
R502 10
C500 47/16
VR501 100K
VR502 100K
C501 330P
C503 1000P
C502 330P
C504 1000P
12.5K/1K
R536 22K
L536 22m
C536 100P
R535 22K
L535 22m
C535 100P
BIAS ADJ
QQR0586-001
L521
C531 100P
C532 100P
VR531 100K
VR532 100K
C530 0.0047
C533 560P
D503 1SS133
Q530 2SC1740S/RS/
R531 560
Q531 KRA104M
C534 0.022
(BIAS)
(GND)
TP501
BIAS T.P.
CN501 BMV7155-106R
DECK R/P HEAD
(L)(ERASE)(R)
TAPE PLAY SIGNAL
TAPE REC SIGNAL
D
E
F
G
H

CD Section

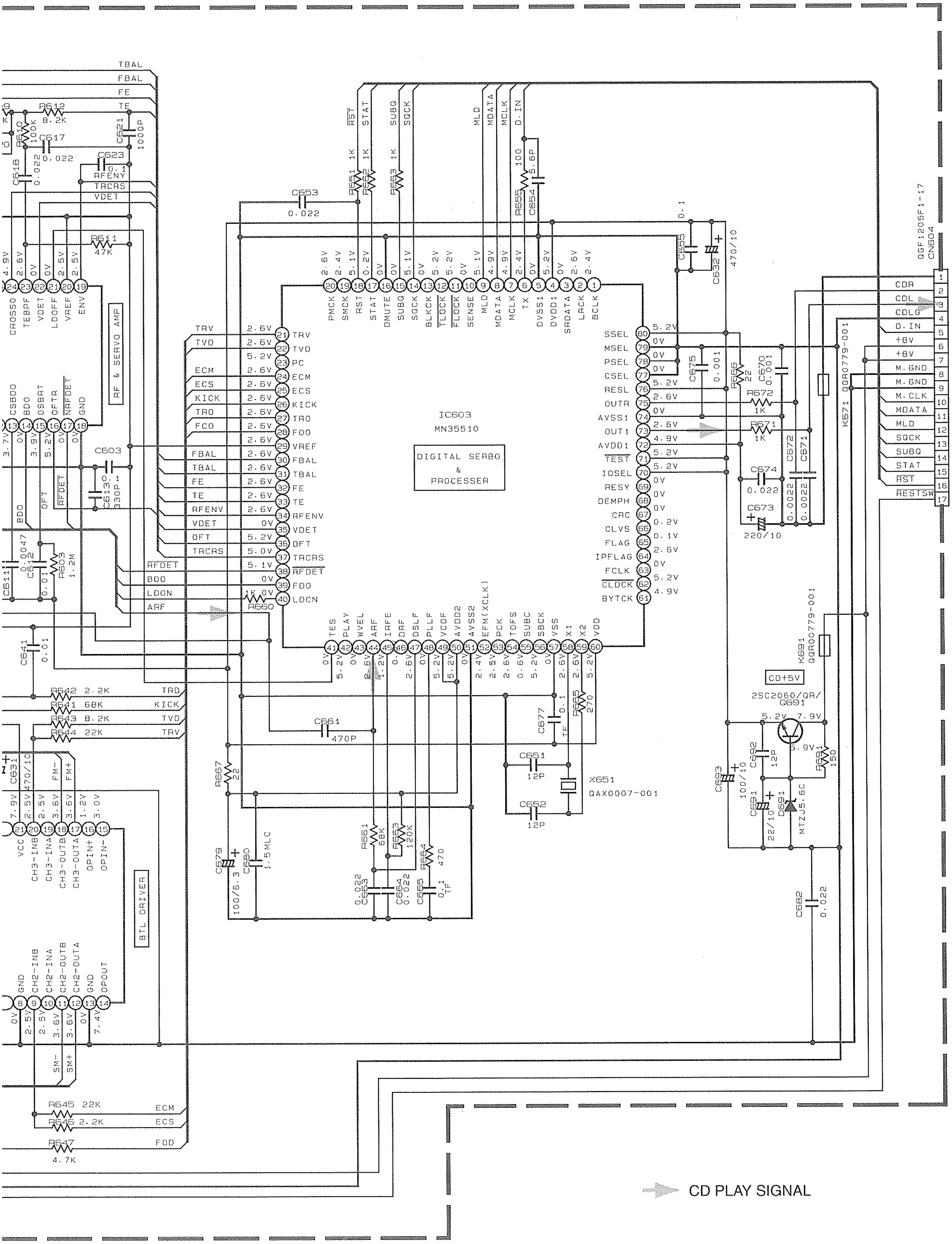

LT022MSA
OR
RLD-78MA
GND
1.5
2K
PN3Q4K-(SL)
OPTIMA-6
A
B
F
C
D
K
E
MD
LD
VR
G
F+
T+
T-
F-
CN501
QGF1015F1-15
A+C
B+D
F
E
R616
91K
F+
T+
T-
F-
TW601
GND
MECH GND
E406982
E406755
E406755
TRACKING COIL
FOCUS COIL
QHV5004-002K
TP601(GND)
0V
1.6V
TP602(ARF)
R605 270K
R606 150K
R607 27K
R609 110K
R610 100K
C606 0.001
C607 0.001
C615 0.022
C616 0.022
C618 0.022
C619 270P
C620 47P
C622 0.022
IC601
AN8806SB
PDAC
PDBD
PDF
PDE
PDER
PDFR
TBAL
FBAL
FE-
FEOUT
TE-
TEOUT
CROSSO
TEBPF
VDET
LDOFF
PD
LD
LDON
LDP
VCC
RF-
RFOUT
RFIN
C.AGC
ARF
C.ENV
C.EA
CSBDO
BDO
OSBRT
OFTR
2.5V
4.9V
2.6V
0V
4.7V
5.2V
3.8V
1.5V
4.0V
3.3V
3.7V
3.9V
2SA952(L,K)
Q601
R615 12
0.7V
5.2V
4.7V
R613 120
R614 10
C678 1.5
MLC
C605 10/25
C602 1.5
R601 12K
C614 0.1
C608 1/50
C609 100P
C610 0.027
C611 0.0047
C612 0.01
LDON
ARF
BDO
OFT
C641 0.01
IC502
BA6897FP
GND
CH4-OUTA
CH4-OUTB
CH4-INA
CH4-INB
BIAS IN
VCC
CH3-INB
CH3-INA
CH1-OUTA
CH1-OUTB
CH1-INA
CH1-INB
NC
MUTET
CH2-INB
CH2-INA
C630 470/10
C625 1.5
C631 470/10
T+
T-
F+
F-
FM-
SM-
3.6V
7.9V
1.6V
R650 1.8K
C642 0.01
CN502
QGA2001C1-06
SPINDLE
REST SW
M
FEED
3.6V FM+
5.1V
3.6V SM-
3.6V SM+
0V
3.6V FM-
ENH-310-5
5
4
3
2
1
A
B
C
D

NOTES

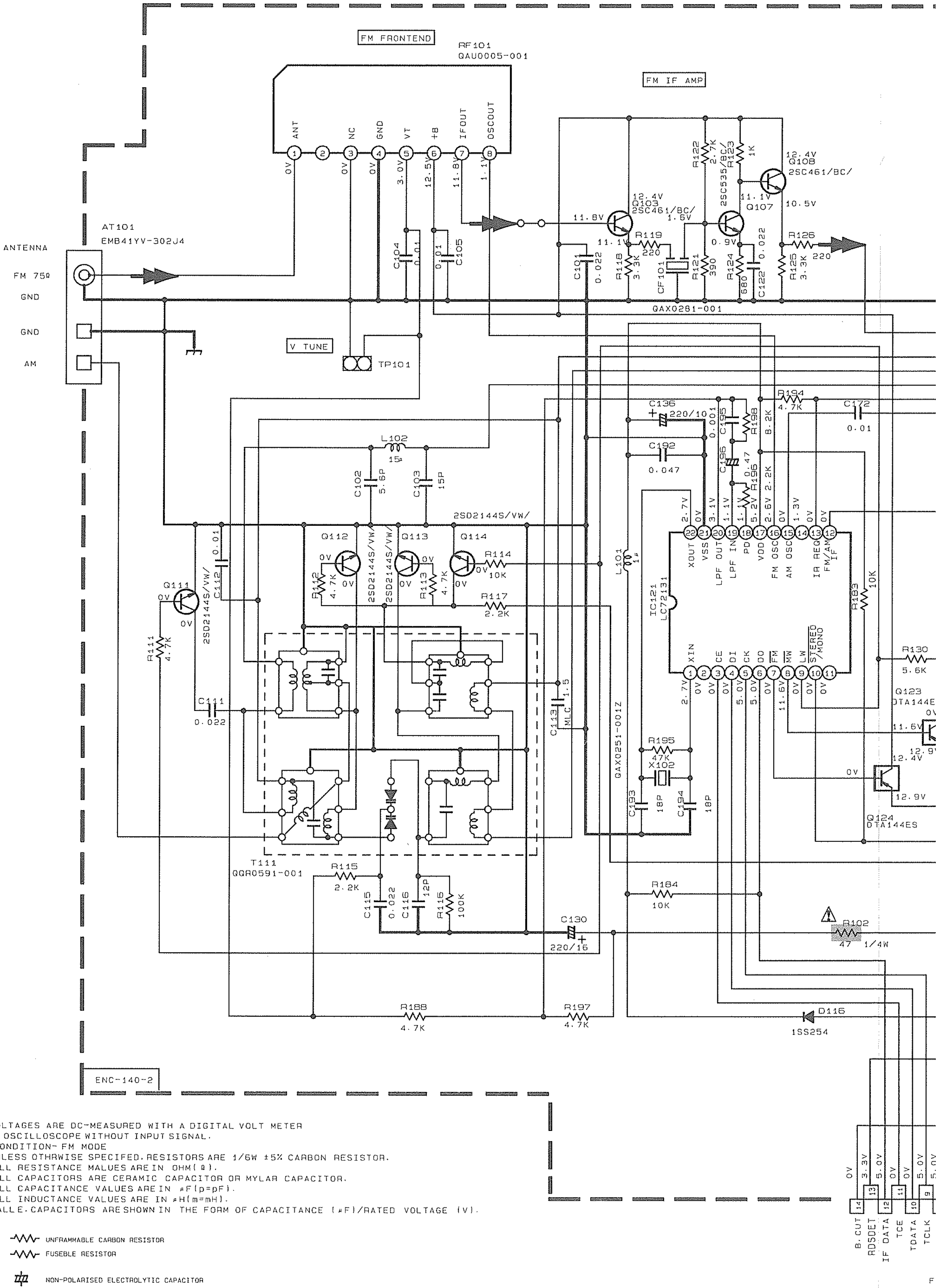
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLTMETER OR OSCILLOSCOPE WITHOUT INPUT SIGNAL.
   CONDITION-CD STOP MODE
2. UNLESS OTHERWISE SPECIFIED, RESISITORS ARE 1/6W ±5% CARBON RESISTOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITORS ARE CERAMIC CAPACITOR OR MYLAR CAPACITOR.
   ALL CAPACITANCE VALUES ARE IN µF(P=pF).
   ALL INDUCTANCE VALUES ARE IN µH(m=mH).
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE (µF)/RATED VOLTAGE (V).

-\/\/\/- UNFRAMMABLE CARBON RESISTOR
-\/\/\/- FUSEBLE RESISTOR

NON-POLARISED ELECTROLYTIC CAPACITOR
POLYPROPYLENE CAPACITOR
MULTILAYER CERAMIC CAPACITOR

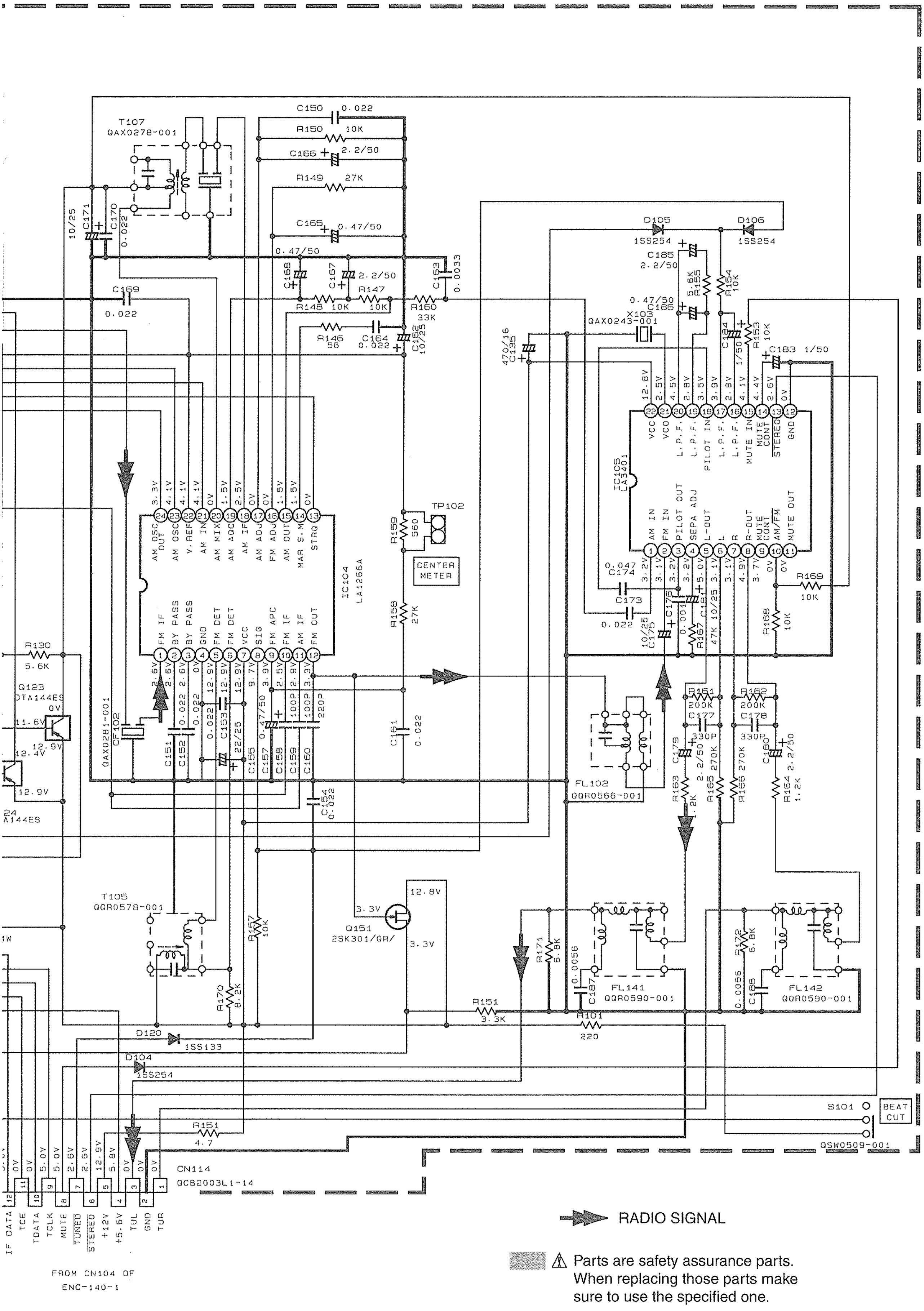

IC603
MN35510
DIGITAL SERBO & PROCESSER
RF & SERVO AMP
BTL DRIVER
CN604
QGF1205F1-17
FROM CN614 OF ENC-140-1 (SHEET2/8)
CDR
CDL
CDLG
D.IN
+8V
+8V
M.GND
M.GND
M.CLK
MDATA
MLD
SQCK
SUBQ
STAT
RST
RESTSW
TBAL
FBAL
FE
TE
RFENV
TRCRS
VDET
TRV
TVD
ECM
ECS
KICK
TRO
FCO
OFT
RFDET
BDO
LDON
ARF
FOD
R612 8.2K
R610 100K
C617 0.022
C618 0.022
C621 1000P
C623 0.1
R611 47K
C603
C613 330P
C612 0.047
C611
R603 1.2M
C641 0.01
R642 2.2K
R641 68K
R643 8.2K
R644 22K
C631 470/10
R645 22K
R646 2.2K
R647 4.7K
C653 0.022
R651 1K
R652 1K
R653 1K
R655 100
C654 5.6P
C655 0.1
C632 470/10
C675 0.001
R666 22
C670 0.001
R672 1K
R671 1K
C672 0.0022
C671 0.0022
C674 0.022
C673 220/10
K671 QQR0779-001
K691 QQR0779-001
CD+5V
2SC2060/QR/ Q691
C693 100/10
C692 12P
R691 150
C691 22/10
D691 MTZJ5.6C
C682 0.022
C661 470P
R667 22
C679 100/6.3
C680 1.5MLC
R661 68K
R663 120K
R664 470
C663 0.022
C664 0.022
C665 0.1 TF
C677 0.1 TF
R665 270
C651 12P
C652 12P
X651 QAX0007-001
R660 1K
CROSSO
TEBPF
VDET
LDOFF
VREF
ENV
CSBDO
BDO
OSBRT
OFTR
NRFDET
GND
VCC
CH3-INB
CH3-INA
CH3-OUTB
CH3-OUTA
OPIN+
OPIN-
FM-
FM+
GND
CH2-INB
CH2-INA
CH2-OUTB
CH2-OUTA
GND
OPOUT
SM-
SM+
PMCK
SMCK
RST
STAT
DMUTE
SUBQ
SQCK
BLKCK
TLOCK
FLOCK
SENSE
MLD
MDATA
MCLK
TX
DVSS1
DVDD1
SRDATA
LRCK
BCLK
SSEL
MSEL
PSEL
CSEL
RESL
OUTR
AVSS1
OUT1
AVDD1
TEST
IOSEL
RESY
DEMPH
CRC
CLVS
FLAG
IPFLAG
FCLK
CLDCK
BYTCK
TRV
TVD
PC
ECM
ECS
KICK
TRO
FOO
VREF
FBAL
TBAL
FE
TE
RFENV
VDET
OFT
TRCRS
RFDET
FDO
LDCN
TES
PLAY
WVEL
ARF
IRFE
DRF
DSLF
PLLF
VCOF
AVDD2
AVSS2
EFM(XCLK)
PCK
TOFS
SUBC
SBCK
VSS
X1
X2
VDD
CD PLAY SIGNAL

Tuner Section


FM FRONTEND
RF101
QAU0005-001
ANT
NC
GND
VT
+B
IFOUT
OSCOUT
FM IF AMP
ANTENNA
FM 75Ω
GND
GND
AM
AT101
EMB41YV-302J4
V TUNE
TP101
R122 2.7K
R123 1K
2SC535/BC/
Q108 2SC461/BC/
Q103 2SC461/BC/
Q107
R119 220
R118 3.3K
CF101
R121 390
R124 680
C122 0.022
R125 3.3K
R126 220
C101 0.022
C104 0.01
C105 0.01
GAX0281-001
C136 220/10
C192 0.047
C195 0.001
R198
R194 4.7K
C172 0.01
C196 0.47
R196
L102 15μ
C102 5.6P
C103 15P
Q112
Q113
Q114
2SD2144S/VW/
R114 10K
R117 2.2K
R112 4.7K
R113 4.7K
Q111
R111 4.7K
C112 0.01
C111 0.022
L101 1μ
IC121 LC72131
XOUT VSS LPF OUT LPF IN PD VDD FM OSC AM OSC IF REQ FM/AM IF
XIN CE DI CK DO FM MW LW STEREO/MONO
R183 10K
R130 5.6K
Q123 DTA144E
Q124 DTA144ES
C113 1.5 MLC
GAX0251-001Z
R195 47K
X102
C193 18P
C194 18P
T111
GGR0591-001
R115 2.2K
C115 0.022
C116 12P
R116 100K
C130 220/16
R184 10K
R102 47 1/4W
R188 4.7K
R197 4.7K
D116 1SS254
ENC-140-2
B.CUT RDSDET IF DATA TCE TDATA TCLK

NOTES
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER
OR OSCILLOSCOPE WITHOUT INPUT SIGNAL.
CONDITION- FM MODE
2. UNLESS OTHRWISE SPECIFED. RESISTORS ARE 1/6W ±5% CARBON RESISTOR.
ALL RESISTANCE MALUES ARE IN OHM(Ω).
ALL CAPACITORS ARE CERAMIC CAPACITOR OR MYLAR CAPACITOR.
ALL CAPACITANCE VALUES ARE IN μF(p=pF).
ALL INDUCTANCE VALUES ARE IN μH(m=mH).
ALL E. CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE (μF)/RATED VOLTAGE (V).

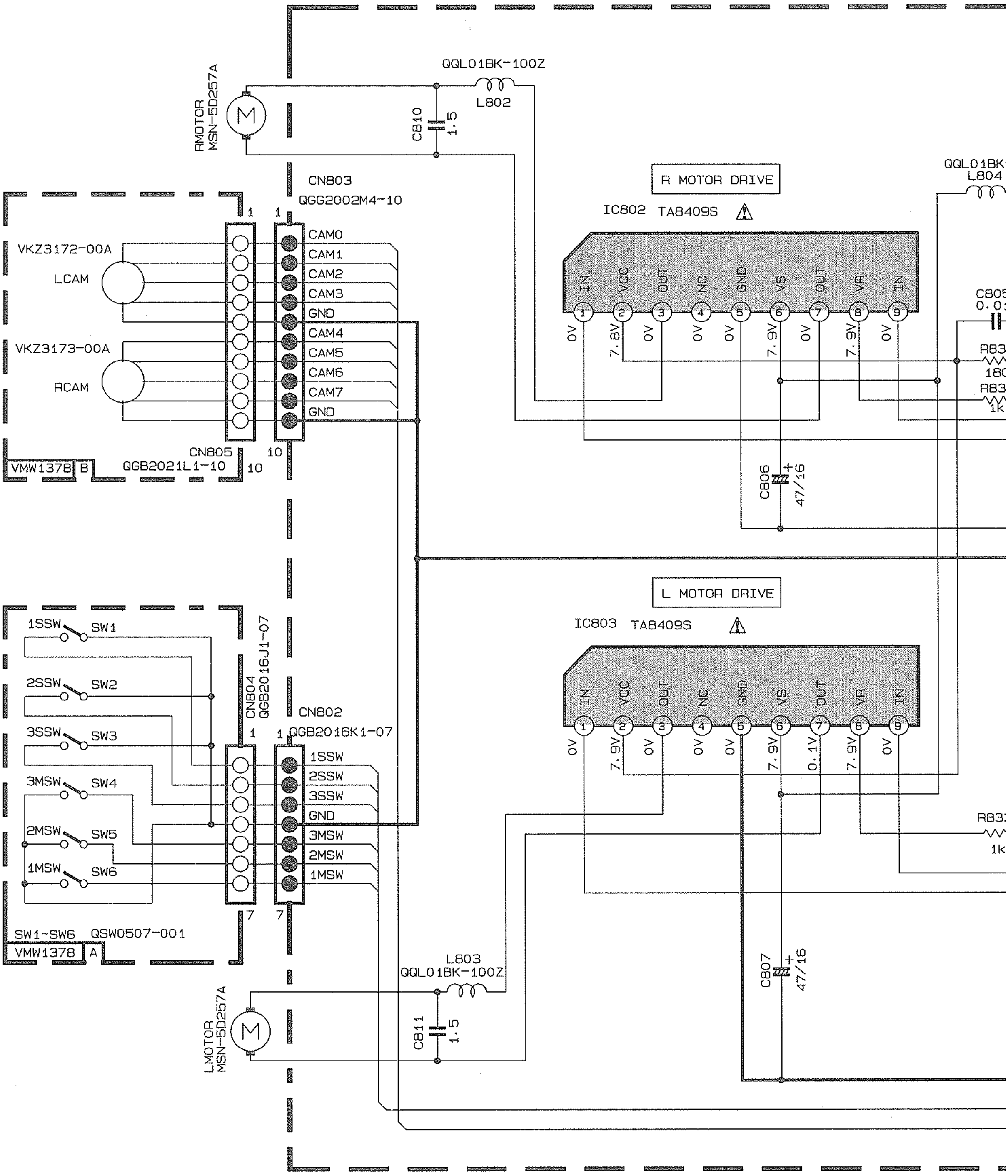
UNFRAMMABLE CARBON RESISTOR
FUSEBLE RESISTOR
NON-POLARISED ELECTROLYTIC CAPACITOR
POLYPROPYLENE CAPACITOR


T107
QAX0278-001
C150 0.022
R150 10K
C166 2.2/50
R149 27K
C165 0.47/50
0.47/50
C168
C167 2.2/50
R147 10K
R148 10K
C153 0.0033
R160 33K
R146 56
C164 0.022
C162 10/25
10/25 C171
C170 0.022
C169 0.022
IC104 LA1266A
AM OSC OUT
AM OSC
V.REF
AM IN
AM MIX
AM AGC
AM IF
AM ADJ
FM ADJ
AM OUT
MAR S.M
STRQ
FM IF
BY PASS
GND
FM DET
VCC
SIG
FM APC
AM IF
FM OUT
CF102 QAX0281-001
C151 0.022
C152 0.022
C153 22/25
C155 0.47/50
C157
C158 100P
C159 100P
C160 220P
C154 0.022
R159 560
TP102
CENTER METER
R158 27K
C161 0.022
D105 1SS254
D106 1SS254
C185 2.2/50
R155 5.6K
R154 10K
C186 0.47/50
X103 QAX0243-001
C184 1/50
R153 10K
C183 1/50
C135 470/16
IC105 LA3401
VCC
VCO
L.P.F.
PILOT IN
MUTE IN
MUTE CONT
STEREO
GND
AM IN
FM IN
PILOT OUT
SEPA ADJ
L-OUT
L
R
R-OUT
MUTE CONT
AM/FM
MUTE OUT
C174 0.047
C173 0.022
C175 10/25
C176 0.001
C181 10/25
R167 47K
R169 10K
R168 10K
FL102 QQR0566-001
R161 200K
R162 200K
C177 330P
C178 330P
C179 2.2/50
C180 2.2/50
R163 1.2K
R165 270K
R166 270K
R164 1.2K
R130 5.6K
Q123 DTA144ES
Q124 DTA144ES
T105 QQR0578-001
R157 10K
R170 8.2K
Q151 2SK301/QR/
12.8V
3.3V
R171 6.8K
C187 0.0056
FL141 QQR0590-001
R172 6.8K
C188 0.0056
FL142 QQR0590-001
R151 3.3K
R101 220
D120 1SS133
D104 1SS254
R151 4.7
S101
BEAT CUT
QSW0509-001
CN114 QCB2003L1-14
IF DATA
TCE
TDATA
TCLK
MUTE
TUNED STEREO
+12V
+5.6V
TUL
GND
TUR
FROM CN104 OF ENC-140-1
RADIO SIGNAL

▨ ⚠ Parts are safety assurance parts. When replacing those parts make sure to use the specified one.

D | E | F | G | H

CD Changer Control Section



RMOTOR
MSN-5D257A
M
QQL01BK-100Z
L802
C810
1.5
CN803
QGG2002M4-10
R MOTOR DRIVE
IC802 TA8409S
QQL01BK
L804
VKZ3172-00A
LCAM
VKZ3173-00A
RCAM
CAM0
CAM1
CAM2
CAM3
GND
CAM4
CAM5
CAM6
CAM7
GND
CN805
QGB2021L1-10
VMW1378 B
IN
VCC
OUT
NC
GND
VS
OUT
VR
IN
0V
7.8V
0V
0V
0V
7.9V
0V
7.9V
0V
C805
R83
180
R83
1K
C806
47/16
L MOTOR DRIVE
IC803 TA8409S
1SSW
SW1
2SSW
SW2
3SSW
SW3
3MSW
SW4
2MSW
SW5
1MSW
SW6
CN804
QGB2016J1-07
CN802
QGB2016K1-07
1SSW
2SSW
3SSW
GND
3MSW
2MSW
1MSW
SW1~SW6 QSW0507-001
VMW1378 A
0V
7.9V
0V
0V
0V
7.9V
0.1V
7.9V
0V
R83
1k
C807
47/16
L803
QQL01BK-100Z
LMOTOR
MSN-5D257A
C811
1.5

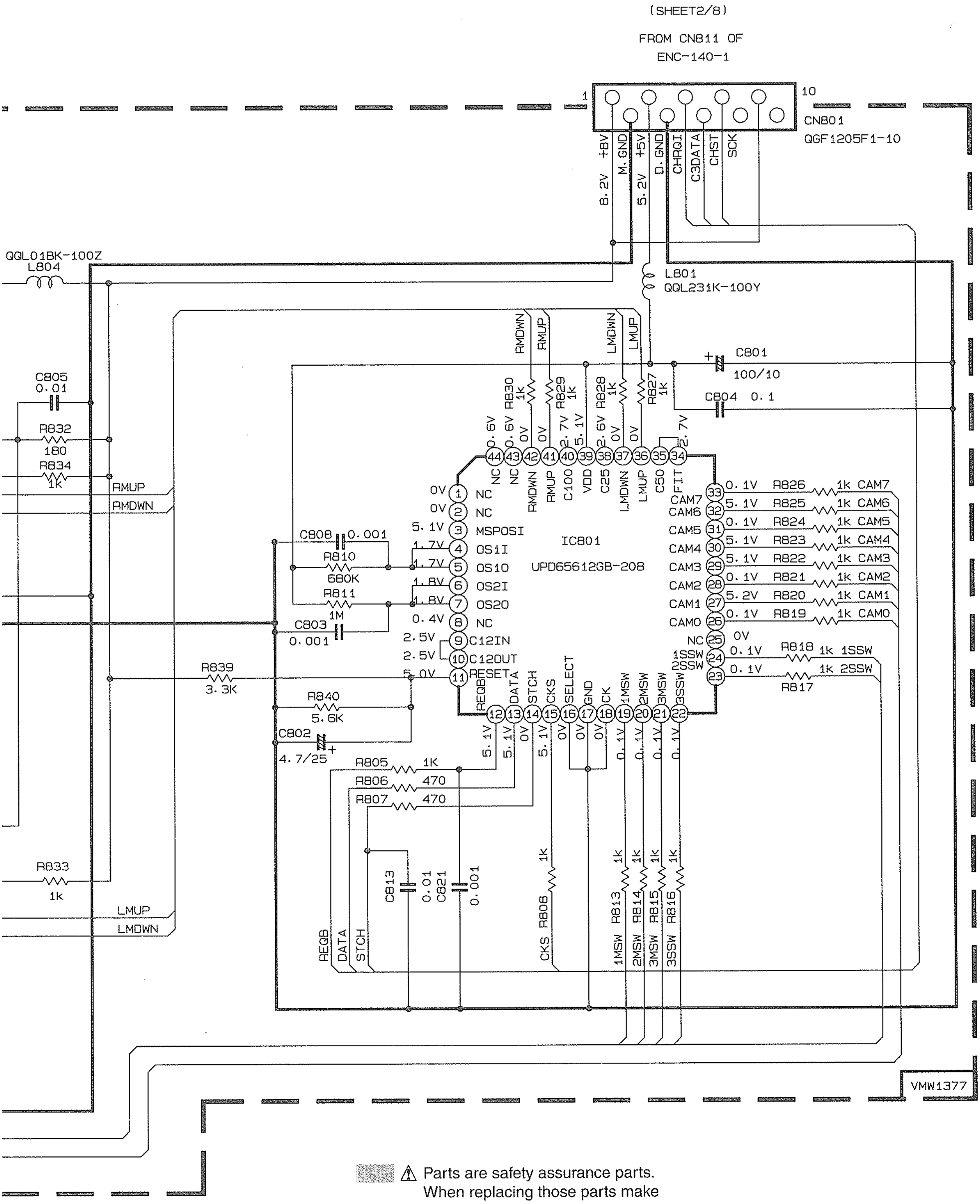
TABLE 1 CAM PATERN LIST

CAM NO. / POSITION	LCAM				COM	RCAM				
	0	1	2	3		4	5	6	7	POSITION
MAIN TRAY1	0	1	1	1	0	1	1	1	0	EMERGENCY
SUB TRAY1	0	0	1	1	0	1	1	0	0	TRAY1 STAND-BY
CAMR 1	0	1	0	1	0	1	0	1	0	TRAY1 CHACKING
MAIN TRAY2	1	0	0	1	0	1	0	0	1	TRAY2 STAND-BY
SUB TRAY2	1	1	1	0	0	0	1	1	1	TRAY2 CHACKING
CAMR 2	1	0	1	0	0	0	1	0	1	TRAY3 STAND-BY
MAIN TRAY3	1	1	0	0	0	0	0	1	1	TRAY3 CHACKING
SUB TRAY3	1	0	0	0	0					
OFF	1	1	1	1	0	1	1	1	1	OFF

0=0V
1=5V

NOTES

1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER OR OSCILLOSCOPE WITHOUT INPUT SIGNAL.
   CONDITION --- DISC 1 CD STOP MODE
2. UNLESS OTHERWISE SPECIFIED, RESISTORS ARE 1/6W ±5% CARBON RESISTOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITORS ARE CERAMIC CAPACITOR OR MYLAR CAPACITOR.
   ALL CAPACITANCE VALUES ARE IN µF(P=pF).
   ALL INDUCTANCE VALUES ARE IN µH(m=mH).
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE (µF)/RATED VOLTAC

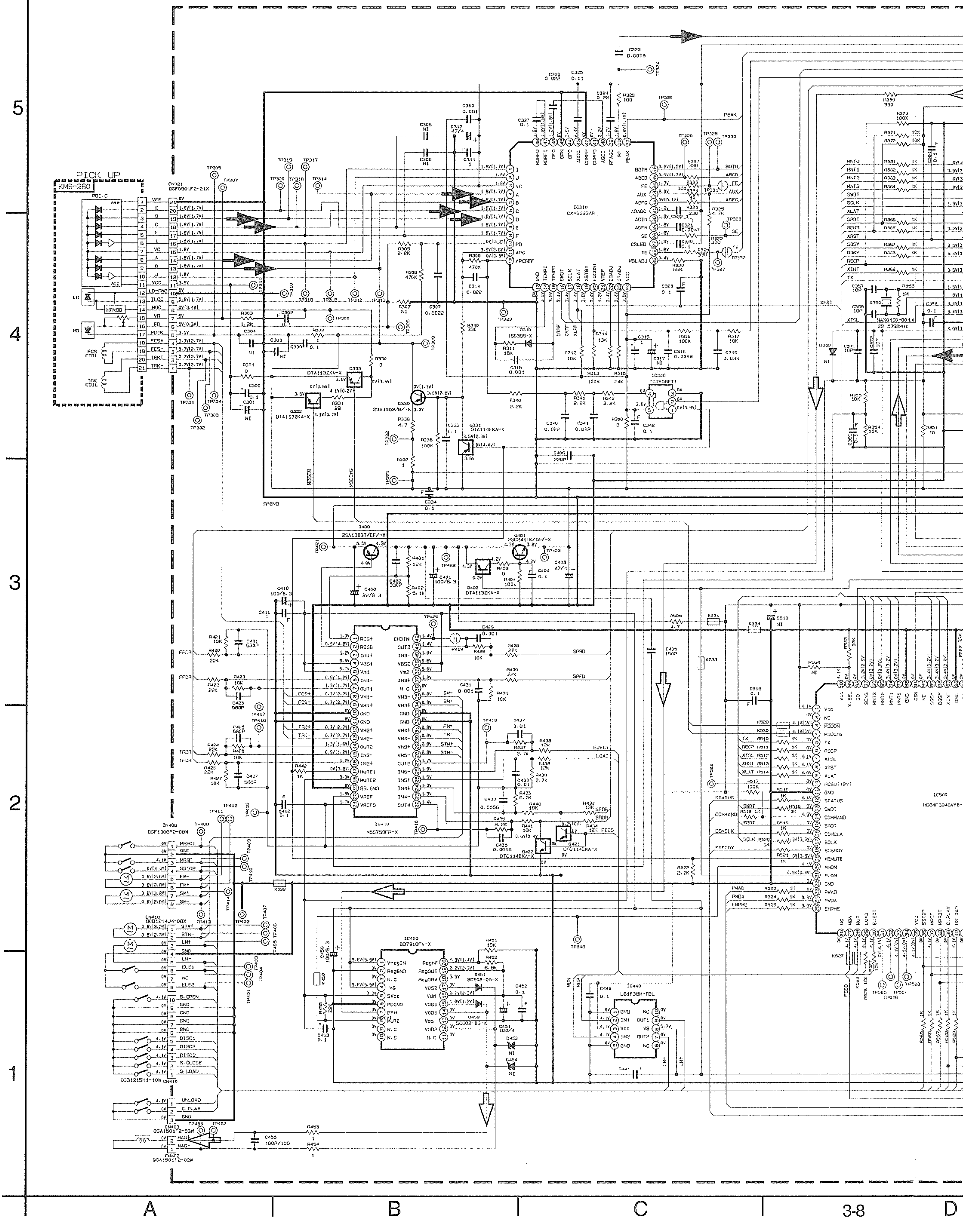

(SHEET2/8)
FROM CN811 OF
ENC-140-1
CN801
QGF1205F1-10
1
10
8.2V +8V
M.GND
5.2V +5V
D.GND
CHRQI
C3DATA
CHST
SCK
QQL01BK-100Z
L804
L801
QQL231K-100Y
C801
100/10
C804 0.1
C805
0.01
R832
180
R834
1K
RMUP
RMDWN
RMDWN
RMUP
LMDWN
LMUP
R830 1k
R829 1k
R828 1k
R827 1k
IC801
UPD65612GB-208
OV 1 NC
OV 2 NC
5.1V 3 MSPOSI
1.7V 4 OS1I
1.7V 5 OS1O
1.8V 6 OS2I
1.8V 7 OS2O
0.4V 8 NC
2.5V 9 C12IN
2.5V 10 C12OUT
5.0V 11 RESET
12 REQB 5.1V
13 DATA 5.1V
14 STCH 0V
15 CKS 5.1V
16 SELECT 0V
17 GND 0V
18 CK 0V
19 1MSW 0.1V
20 2MSW 0.1V
21 3MSW 0.1V
22 3SSW 0.1V
23 2SSW 0.1V
24 1SSW 0.1V
25 NC 0V
26 CAM0 0.1V
27 CAM1 5.2V
28 CAM2 0.1V
29 CAM3 5.1V
30 CAM4 5.1V
31 CAM5 0.1V
32 CAM6 5.1V
33 CAM7 0.1V
34 FIT 2.7V
35 C50
36 LMUP 0V
37 LMDWN 0V
38 C25 2.6V
39 VDD 5.1V
40 C100 2.7V
41 RMUP 0V
42 RMDWN 0V
43 NC 0.6V
44 NC 0.6V
R826 1k CAM7
R825 1k CAM6
R824 1k CAM5
R823 1k CAM4
R822 1k CAM3
R821 1k CAM2
R820 1k CAM1
R819 1k CAM0
R818 1k 1SSW
R817 1k 2SSW
C808 0.001
R810
680K
R811
1M
C803
0.001
R839
3.3K
R840
5.6K
C802
4.7/25
R805 1K
R806 470
R807 470
C813 0.01
C821 0.001
R808 1k
R813 1k
R814 1k
R815 1k
R816 1k
REQB
DATA
STCH
CKS
1MSW
2MSW
3MSW
3SSW
R833
1k
LMUP
LMDWN
VMW1377

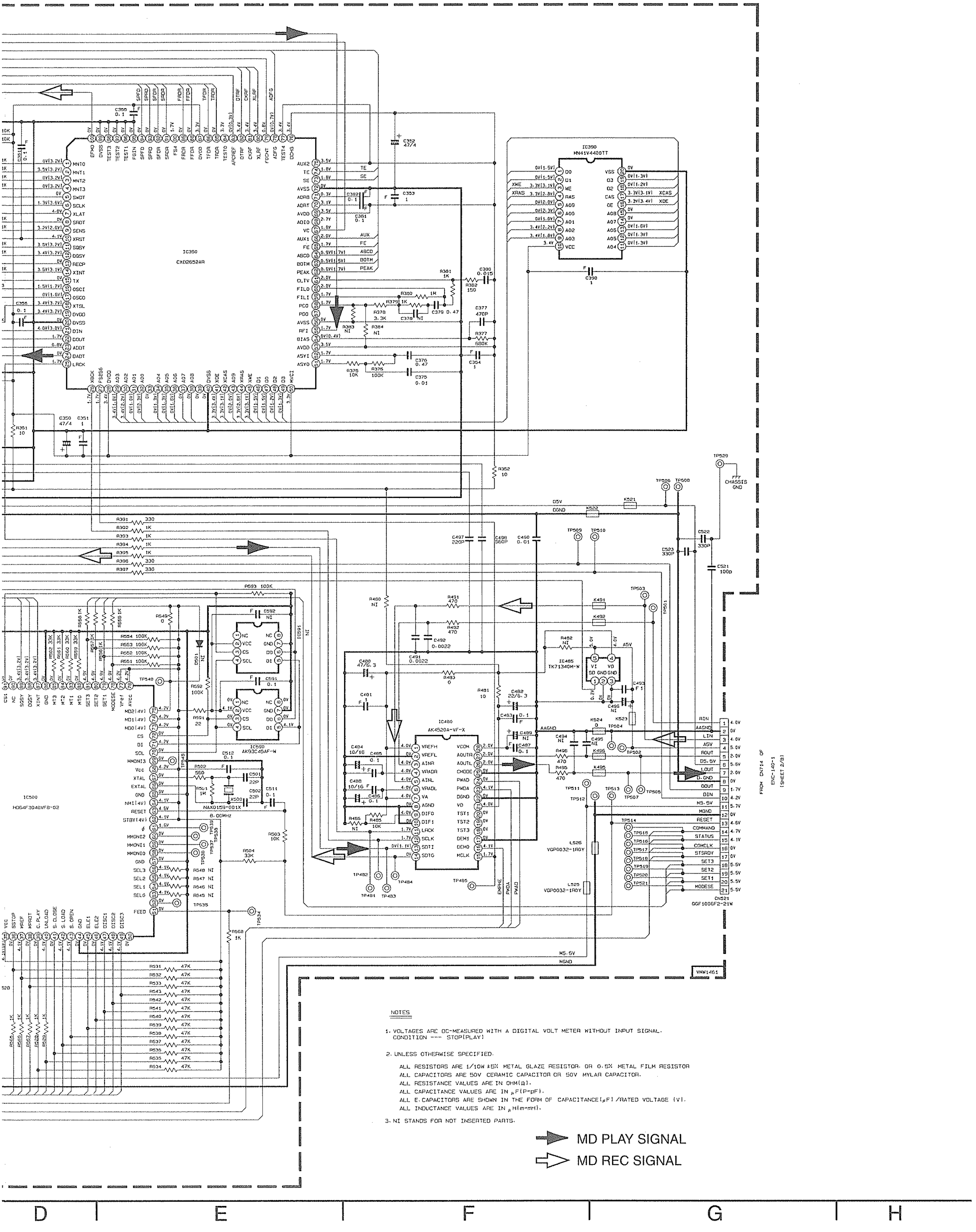
▨ ⚠ Parts are safety assurance parts. When replacing those parts make sure to use the specified one.

OR.

ED VOLTAGE (V).

MD Servo Control Section


PICK UP
KMS-260
CN321
QGF0501F2-21X
IC310
CXA2523AR
IC340
TC7S08FT1
Q330
2SA1362/G/-X
Q331
DTA114EKA-X
Q332
DTA113ZKA-X
Q333
DTA113ZKA-X
Q310
1SS355-X
X350
NAX0160-001X
20.5792MHz
RFGND
Q400
2SA1363T/EF/-X
Q401
2SC2411K/QR/-X
Q402
DTA113ZKA-X
IC410
M56758FP-X
Q421
DTC114EKA-X
Q422
DTC114EKA-X
EJECT
LOAD
FEED
SPRD
SPFD
FRDR
FFDR
TRDR
TFDR
CN408
QGF1006F2-08W
CN418
QGB1214J4-08X
QGB1215K1-10W
CN410
CN403
QGA1501F2-03W
CN402
QGA1501F2-02W
IC450
BD7910FV-X
D451
SC802-06-X
D452
SC802-06-X
IC440
LB1638M-TEL
IC500
HD64F3048VF8-
MPROT
SSTOP
S.OPEN
DISC1
DISC2
DISC3
S.CLOSE
S.LOAD
UNLOAD
C.PLAY
MAG+
MAG-
STATUS
COMMAND
COMCLK
STSRDY
PWAD
PWDA
EMPHE
A
B
C
D
1
2
3
4
5


IC350
CXD2652AR
IC390
MN41V4400TT
IC480
AK4520A-VF-X
IC485
TK71340M-W
IC590
AK93C45AF-W
IC500
HD64F3048VF8-02
X500
NAX0159-001X
8.00MHz
L525
VGP0032-1R0Y
L526
VGP0032-1R0Y
CN521
GGF1006F2-21W
RIN
AAGND
LIN
A5V
ROUT
D5.5V
LOUT
D.GND
DOUT
DIN
M5.5V
MGND
RESET
COMMAND
STATUS
COMCLK
STSRDY
SET3
SET2
SET1
MODESE
FROM CN714 OF
ENC-140-1
(SHEET 2/8)
CHASSIS GND
D5V
DGND
M5.5V
MGND
VNW1461
D
E
F
G
H

NOTES

1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL.
CONDITION --- STOP(PLAY)

2. UNLESS OTHERWISE SPECIFIED.

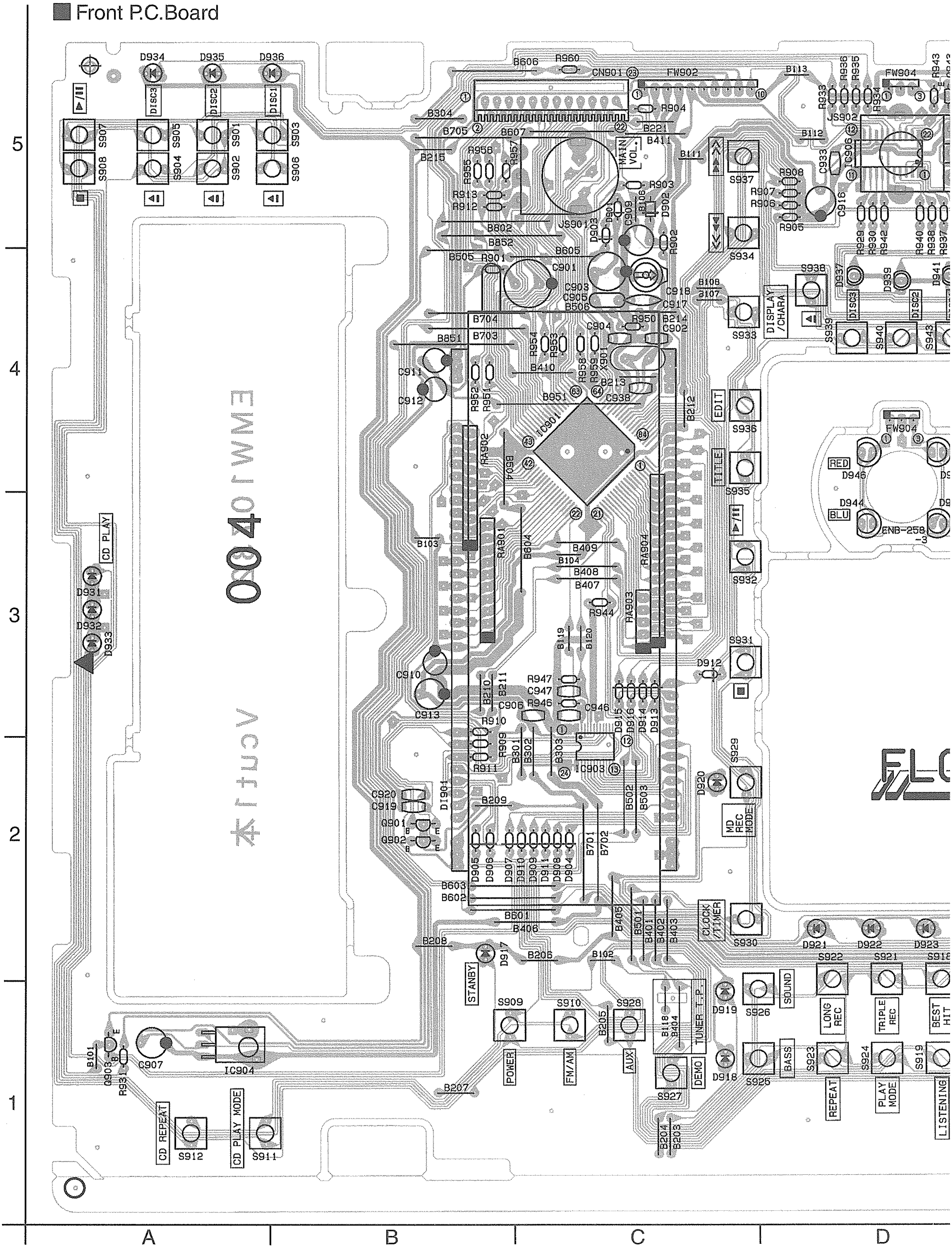
ALL RESISTORS ARE 1/10W ±5% METAL GLAZE RESISTOR, OR 0.5% METAL FILM RESISTOR
ALL CAPACITORS ARE 50V CERAMIC CAPACITOR OR 50V MYLAR CAPACITOR.
ALL RESISTANCE VALUES ARE IN OHM(Ω).
ALL CAPACITANCE VALUES ARE IN μF(P=pF).
ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(μF)/RATED VOLTAGE (V).
ALL INDUCTANCE VALUES ARE IN μH(m=mH).

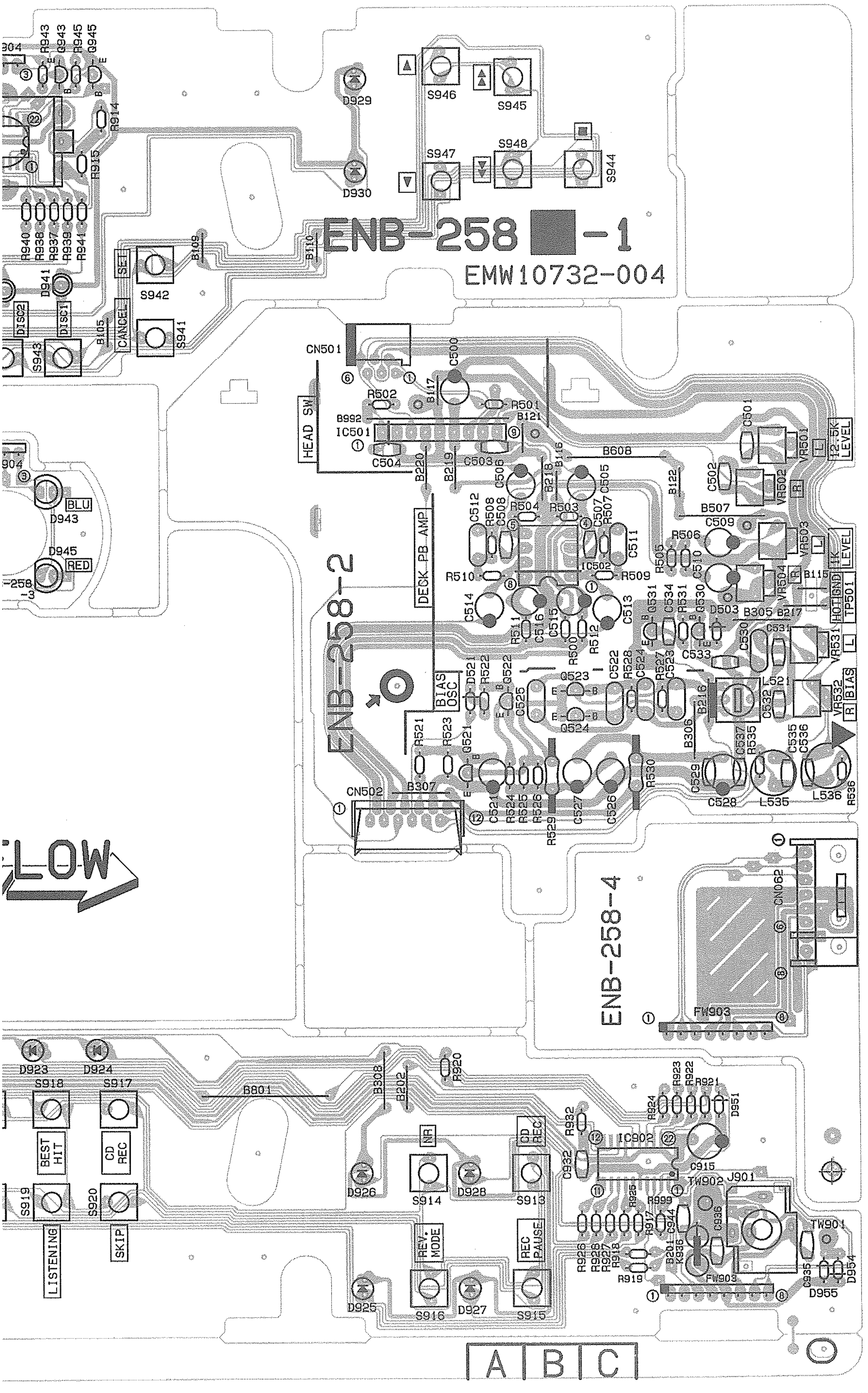
3. NI STANDS FOR NOT INSERTED PARTS.

➡ MD PLAY SIGNAL
⇨ MD REC SIGNAL

Printed Circuit Boards

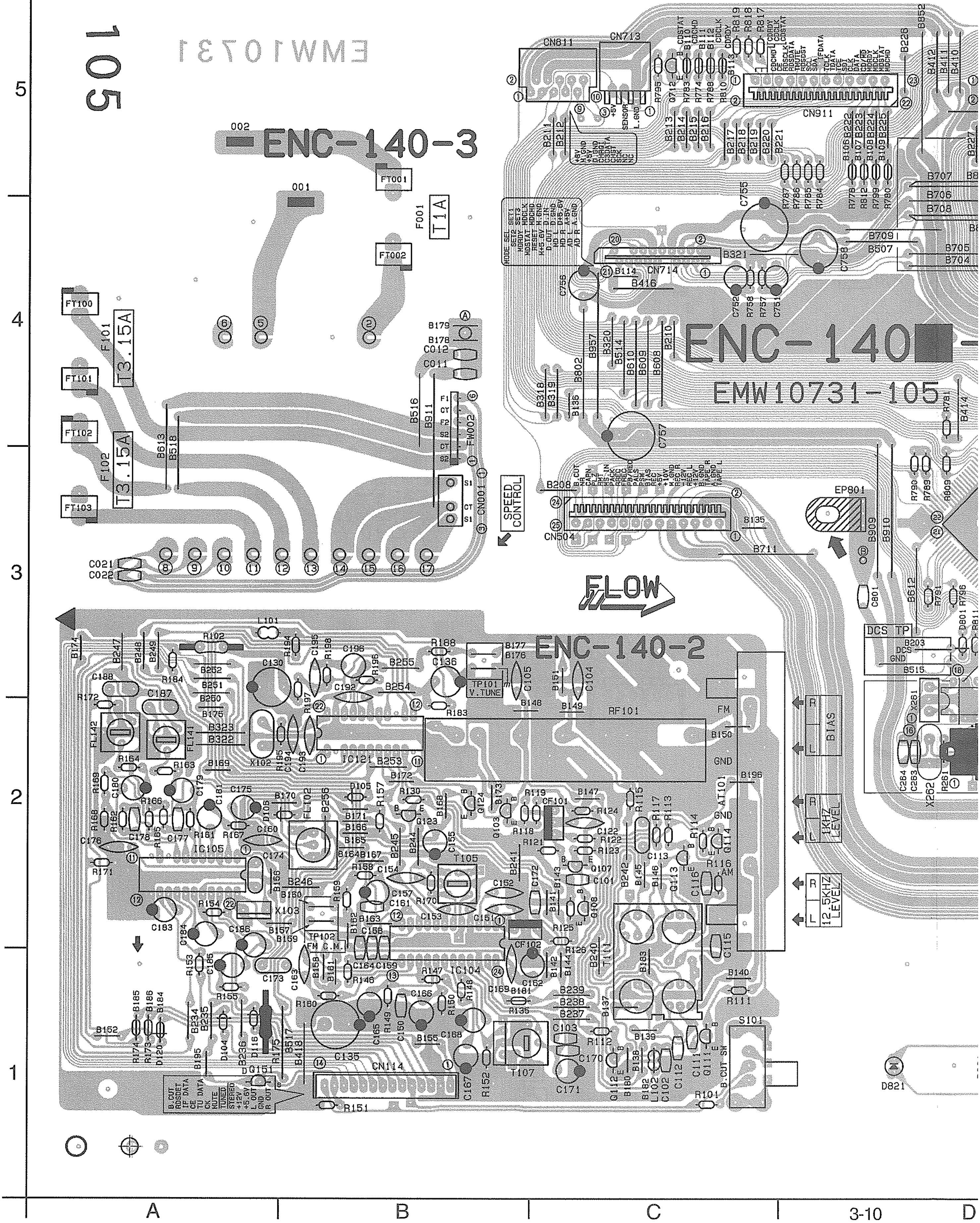
■ Front P.C.Board

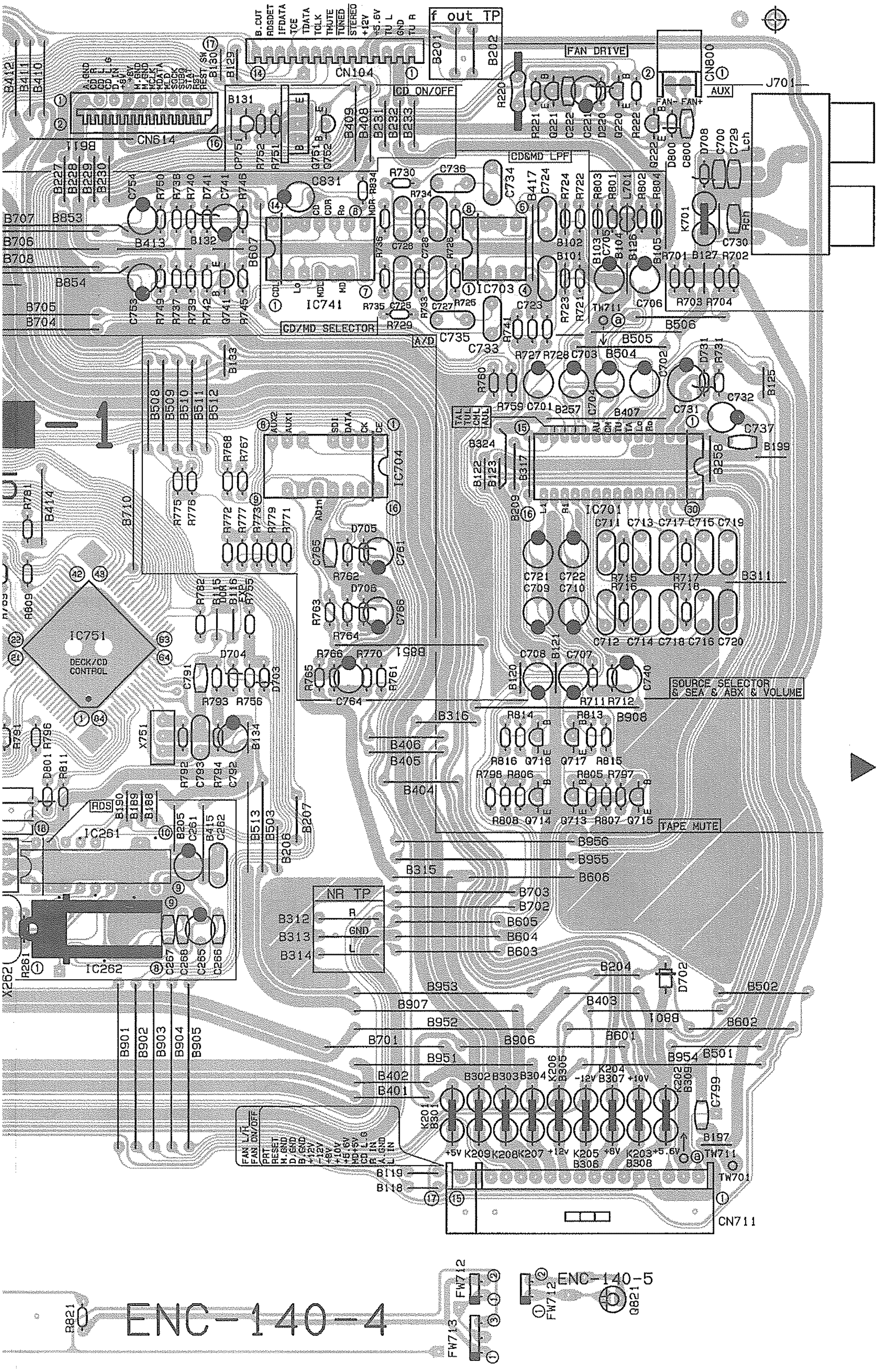

5
4
3
2
1
A
B
C
D
D934
D935
D936
DISC3
DISC2
DISC1
S907
S905
S901
S903
S908
S904
S902
S906
B606
R960
CN901
FW902
B113
R936
R935
R933
R934
FW904
R943
JS902
B304
B705
B607
R904
B221
B411
B112
IC906
C933
B215
R956
R955
R957
MAIN VOL.
B111
S937
R908
R907
R906
R905
C916
R913
R912
R903
B106
D901
C909
D902
JS901
D903
B802
B852
R902
S934
R929
R930
R942
R940
R938
R937
B605
B505
R901
C901
C903
C905
B506
C918
C917
B108
B107
DISPLAY /CHARA
S938
D937
D939
D941
S933
DISC3
DISC2
B704
B703
B851
R950
B214
C904
C902
R954
R953
R958
R959
X901
S939
S940
S943
B410
C911
C912
R952
R951
B213
C938
B951
IC901
B212
EDIT
S936
FW904
RED
D946
D944
BLU
ENB-258 -3
RA902
B504
TITLE
S935
B103
RA901
B604
B409
B104
B408
B407
RA904
S932
CD PLAY
D931
D932
D933
R944
RA903
B119
B120
S931
D912
C910
C913
B210
B211
R947
C947
C906
R946
C946
D915
D916
D914
D913
R910
R909
B301
B302
B303
IC903
R911
S929
D920
MD REC MODE
DI901
C920
C919
B209
Q901
Q902
B502
B503
D905
D906
D907
D910
D909
D911
D908
D904
B701
B702
B603
B602
B601
B406
B405
B501
B401
B402
B403
CLOCK /TIMER
S930
D921
D922
D923
B208
D917
B206
B102
S922
S921
S918
STANBY
S909
S910
S928
B118
B404
TUNER T.P.
D919
S926
SOUND
LONG REC
TRIPLE REC
BEST HIT
B101
Q903
R931
C907
IC904
B205
D918
S925
BASS
S923
S924
S919
POWER
FM/AM
AUX
S927
DEMO
REPEAT
PLAY MODE
LISTENING
B207
CD REPEAT
S912
CD PLAY MODE
S911
B204
B203


ENB-258 ■-1
EMW10732-004
ENB-258-2
ENB-258-4
LOW
S946
S945
S947
S948
S944
D929
D930
S942
S941
S943
SET
CANCEL
DISC1
DISC2
B109
B110
B105
D941
D943
D945
BLU
RED
R943
Q943
R945
Q945
R914
R915
R940
R938
R937
R939
R941
CN501
HEAD SW
IC501
B992
R502
R501
B117
B121
C500
C504
C503
B220
B219
C506
B218
B116
C505
B608
B122
C501
C502
VR501
VR502
12.5K LEVEL
B507
C509
R506
VR503
1K LEVEL
DECK PB AMP
C512
R508
C508
R504
R503
C507
R507
C511
IC502
R510
R509
R505
C510
B115
VR504
HOT GND
TP501
C514
C516
C515
C513
R511
R500
R512
Q531
C534
R531
C530
D503
B305
B217
C531
C533
VR531
BIAS OSC
D521
R522
Q522
Q523
Q524
C525
C522
R528
C524
R527
C523
B216
L521
C532
VR532
R BIAS
R521
R523
Q521
B306
C537
R535
C535
C536
CN502
B307
C521
R524
R525
R526
R529
C527
C526
R530
C529
C528
L535
L536
R536
CN062
FW903
D923
D924
S918
S917
B801
B308
B202
R920
BEST HIT
CD REC
S919
S920
LISTENING
SKIP
NR
CD REC
D926
S914
D928
S913
REV. MODE
REC PAUSE
D925
S916
D927
S915
R932
C932
IC902
R924
R923
R922
R921
D951
C915
TW902
J901
R925
R999
R926
R928
R927
R918
R917
C944
R919
B201
K936
C936
TW901
C935
D954
D955
A
B
C

E F G

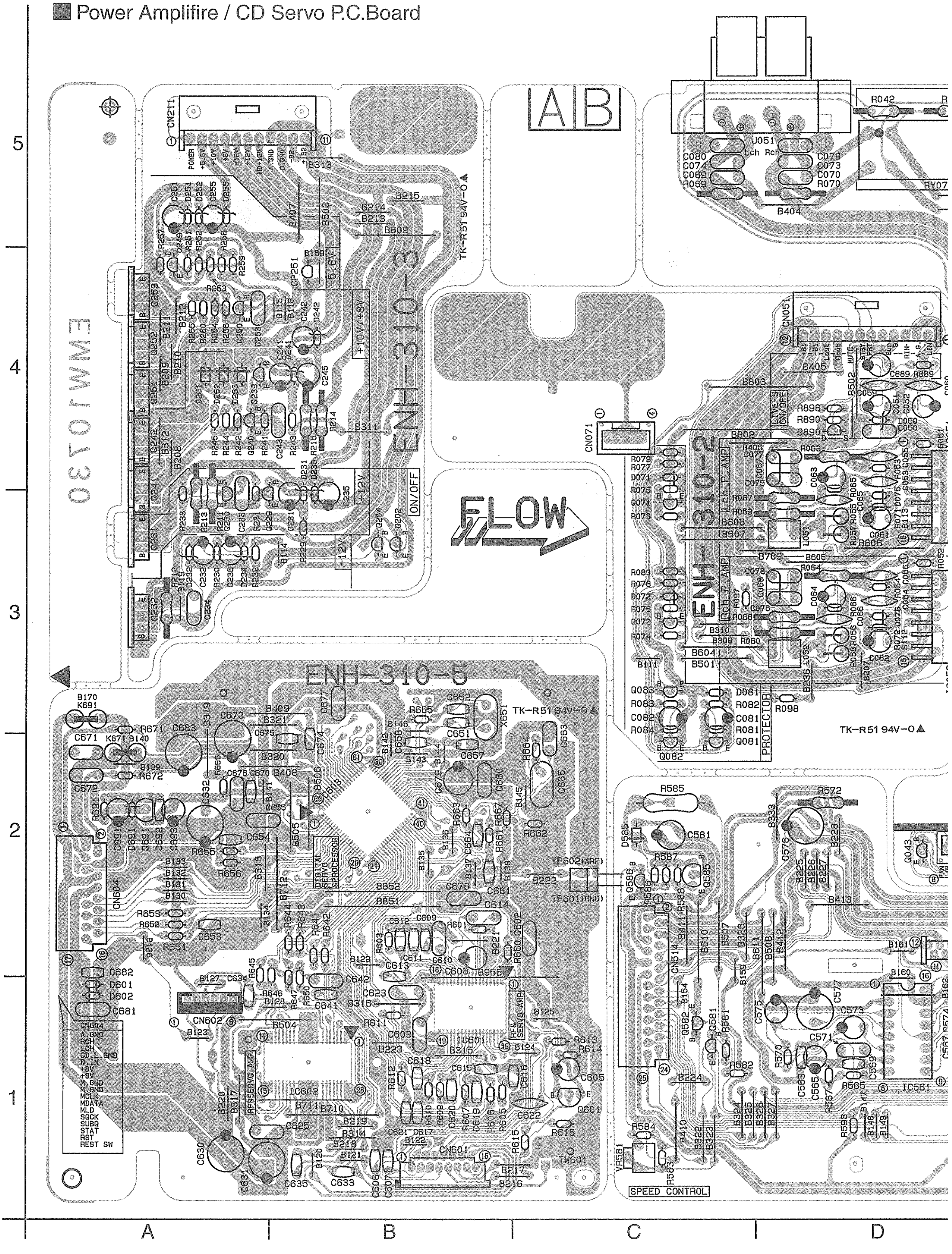
Input / Tuner P.C.Board


ENC-140-3
ENC-140-2
ENC-140
EMW10731-105
105
FLOW
SPEED CONTROL
T3.15A
T1A
F001
F101
F102
FT001
FT002
FT100
FT101
FT102
FT103
CN001
FW002
CN504
CN611
CN713
CN714
CN911
CN114
IC105
IC121
IC104
RF101
T105
T107
T111
S101
B.CUT SW
EP801
DCS TP
BIAS
1KHZ LEVEL
12.5KHZ LEVEL
FM
AM
GND
TP101 V.TUNE
TP102 FM C.M.
X102
X103
X261
X262
D821
5
4
3
2
1
A
B
C
D

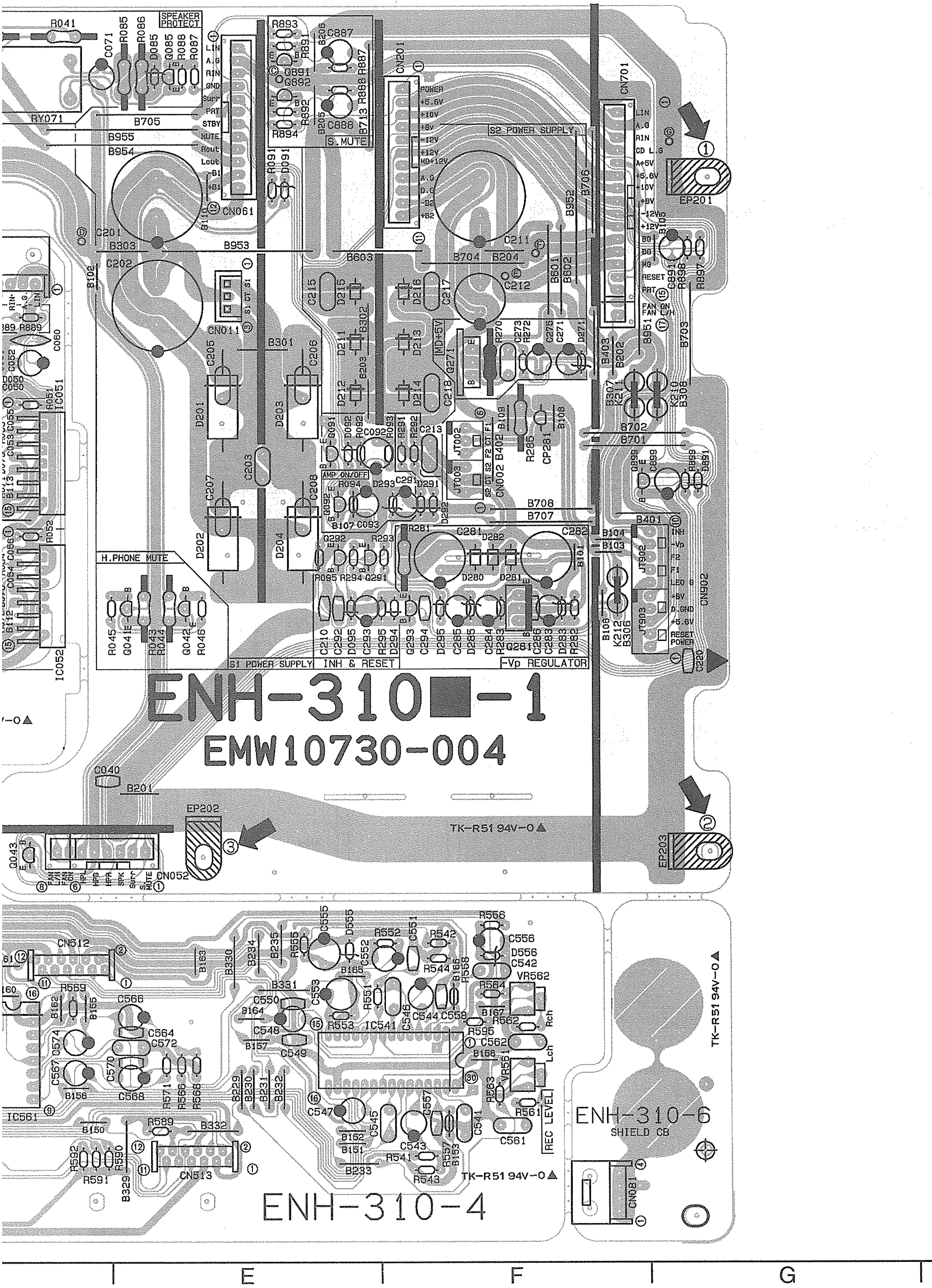

f out TP
FAN DRIVE
CN104
CN614
CN800
AUX
J701
FAN- FAN+
Lch
Rch
CD ON/OFF
CD&MD LPF
CD/MD SELECTOR
A/D
IC741
IC703
IC701
IC704
IC751
DECK/CD CONTROL
IC261
IC262
RDS
X751
TAL TUL CML AUL
SOURCE SELECTOR & SEA & ABX & VOLUME
TAPE MUTE
NR TP
R
GND
L
FAN L/H
FAN ON/OFF
CN711
TW701
TW711
ENC-140-4
ENC-140-5
FW712
FW713
Q821
R821
-1
D
E
F
G
H

ABC

Power Amplifire / CD Servo P.C.Board

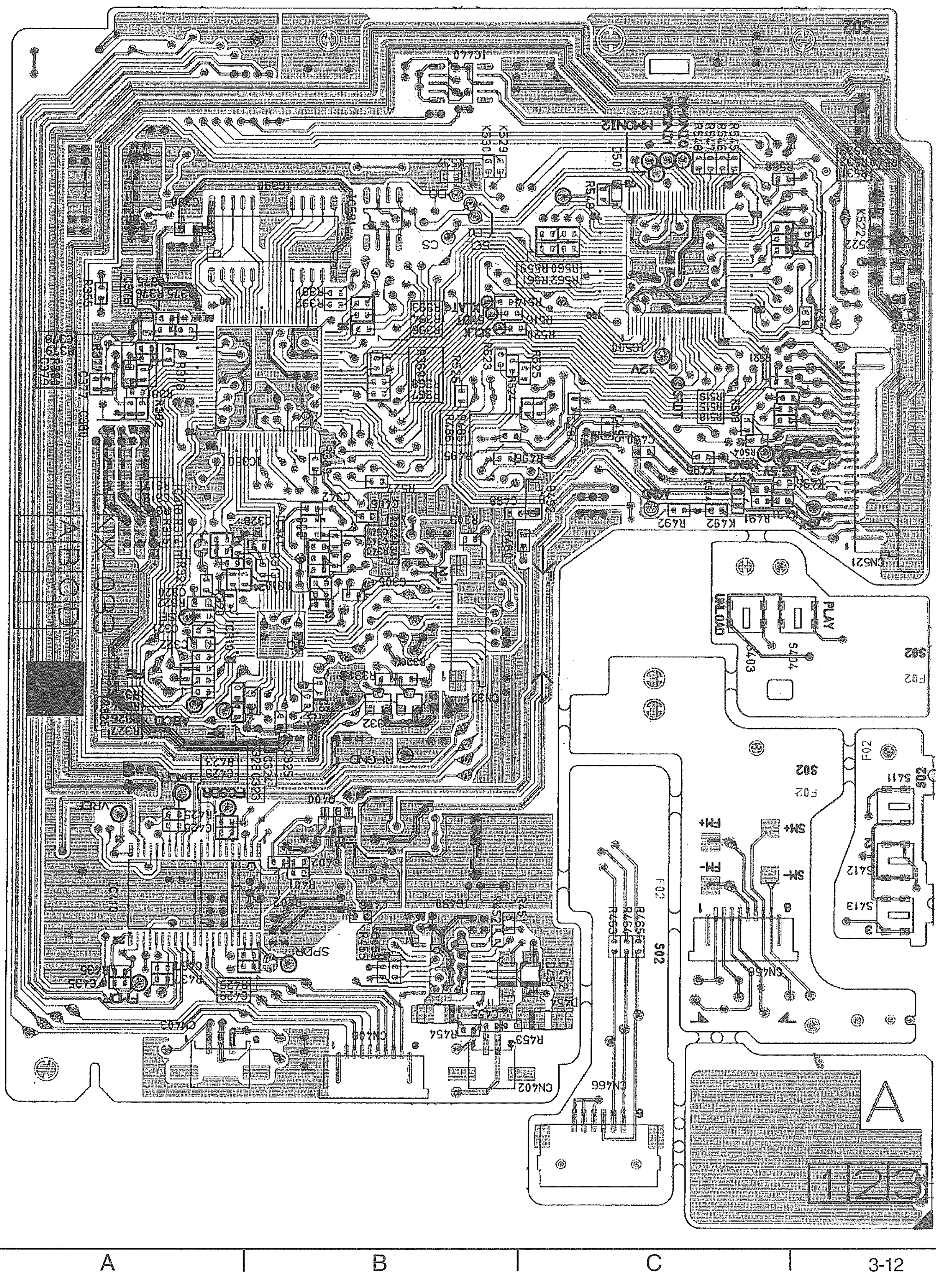


5
4
3
2
1
A
B
C
D
EMW10730
ENH-310-3
ENH-310-2
ENH-310-5
FLOW
A B
CN211
CN071
CN051
CN604
CN602
CN601
CN514
J051
Lch
Rch
IC601
IC602
IC561
DIGITAL SERVO PROCESSOR
RF&SERVO AMP
Lch P.AMP
Rch P.AMP
PROTECTOR
LIVE SW ON/OFF
ON/OFF
+10V/+8V
+5.6V
+12V
-12V
TK-R51 94V-0
TP602(ARF)
TP601(GND)
TW601
VR581
SPEED CONTROL
X651
CN604
A.GND
RCH
LCH
CD.L.GND
D.IN
+8V
+8V
M.GND
M.GND
MCLK
MDATA
MLD
SQCK
SUBQ
STAT
RST
REST SW
POWER
+5.6V
+10V
+8V
-12V
+12V
ND+12V
A.GND
D.GND
-B2
+B2

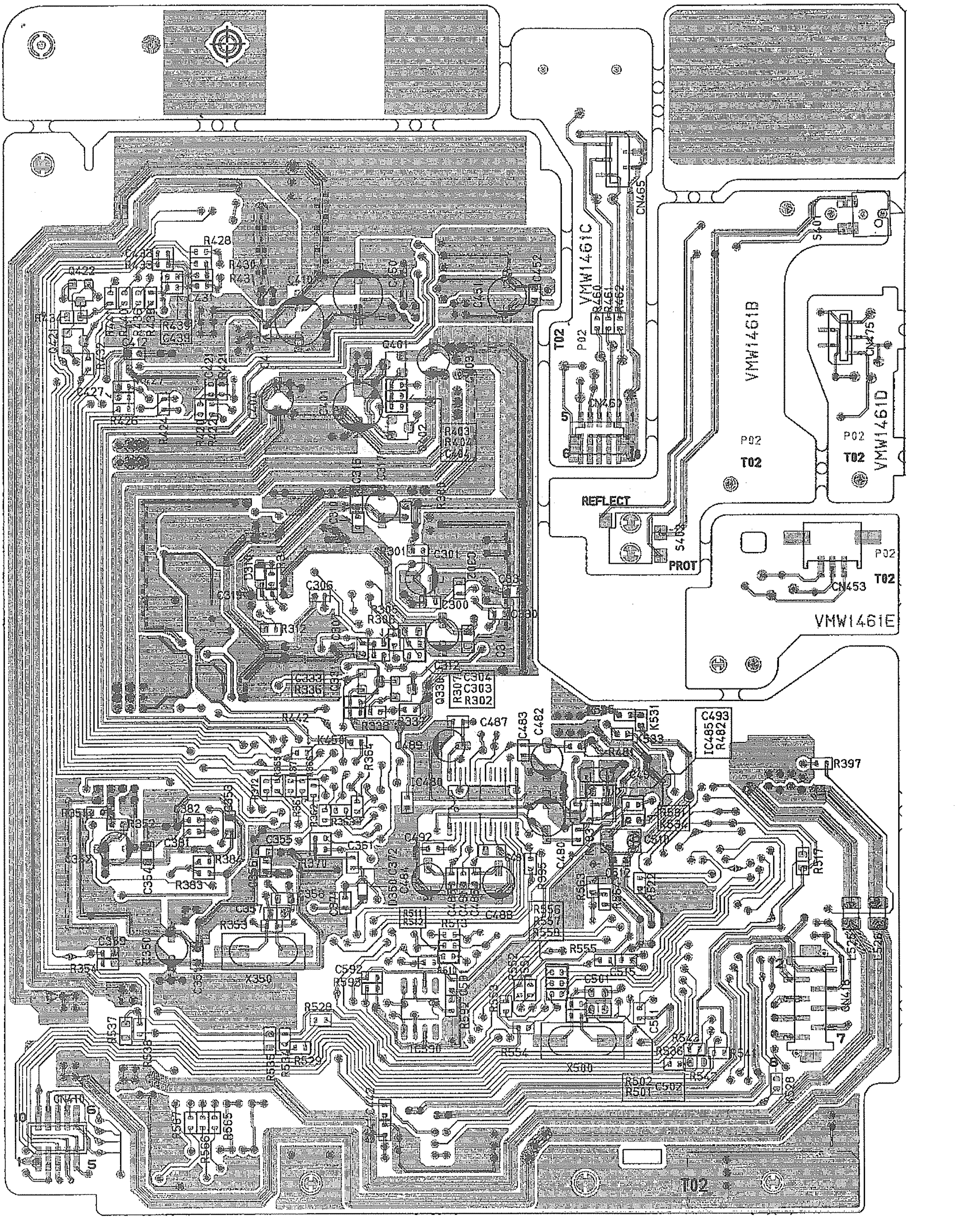

ENH-310■-1
EMW10730-004
SPEAKER PROTECT
S.MUTE
S2 POWER SUPPLY
H.PHONE MUTE
S1 POWER SUPPLY
INH & RESET
-Vp REGULATOR
AMP ON/OFF
MD+5V
CN061
CN011
CN201
CN701
CN902
CN002
CN052
CN512
CN513
CN081
IC051
IC052
IC541
IC561
EP201
EP202
EP203
RY071
C201
C202
C211
JT002
JT003
JT902
JT903
TK-R51 94V-0▲
VR562
VR561
Rch
Lch
REC LEVEL
ENH-310-4
ENH-310-6
SHIELD CB
①
②
③
E
F
G

MD Servo Control P.C.Board

(Solder Side)


5
4
3
2
1
A
B
C
D
S02
IC440
CN521
PLAY
UNLOAD
S403
S404
F02
SM+
SM-
FM+
FM-
CN468
CN466
CN402
CN403
CN408
SPDR
VREF
12V
S411
S412
S413
A
1
2
3

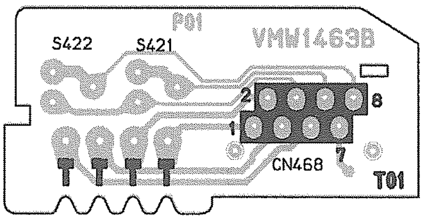
(Parts Side)



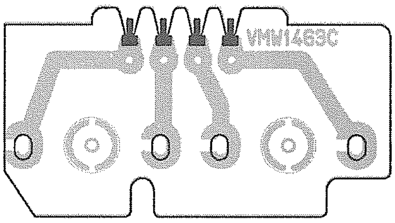
VMW1461B
VMW1461C
VMW1461D
VMW1461E
CN465
CN462
CN475
CN453
CN410
CN415
REFLECT
PROT
S401
S402
P02
T02
IC480
IC530
IC485
X350
X500
Q401
Q402
Q421
Q422
Q336
C401
C493
C487
C482
C483
C501
C503
C511
C515
C592
R428
R430
R431
R460
R461
R462
R426
R424
R397
R317
R353
R354
R383
R352
R370
R555
R556
R557
R558
R553
R554
R528
R529
R535
R536
R537
R538
R541
R542
R543
R502
R501
R565
R566
R567
R302
R303
R305
R307
R336
R337
R338
L525
L526
D
E
F
G
H

■ MD Changer Switch P.C.Board

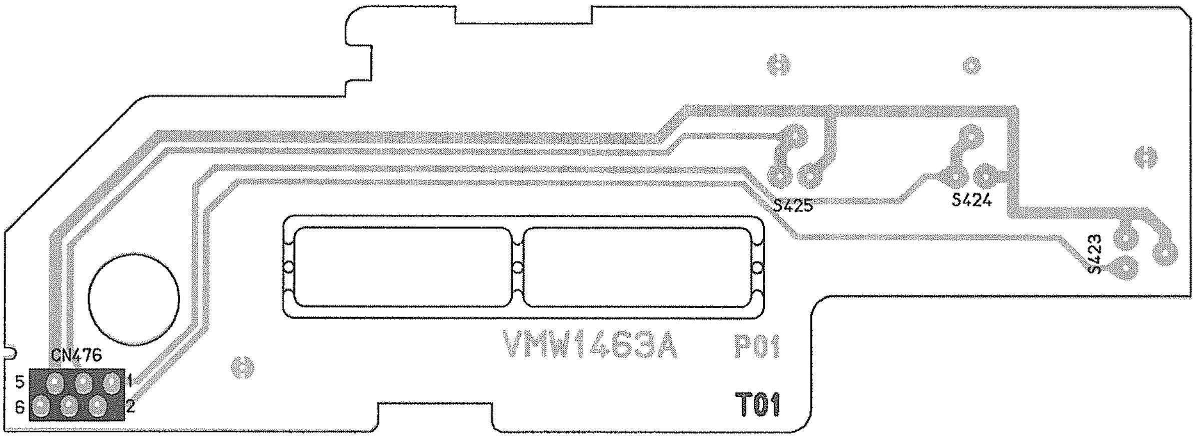
5


P01
VMW1463B
S422
S421
2
8
1
7
CN468
T01

4



3

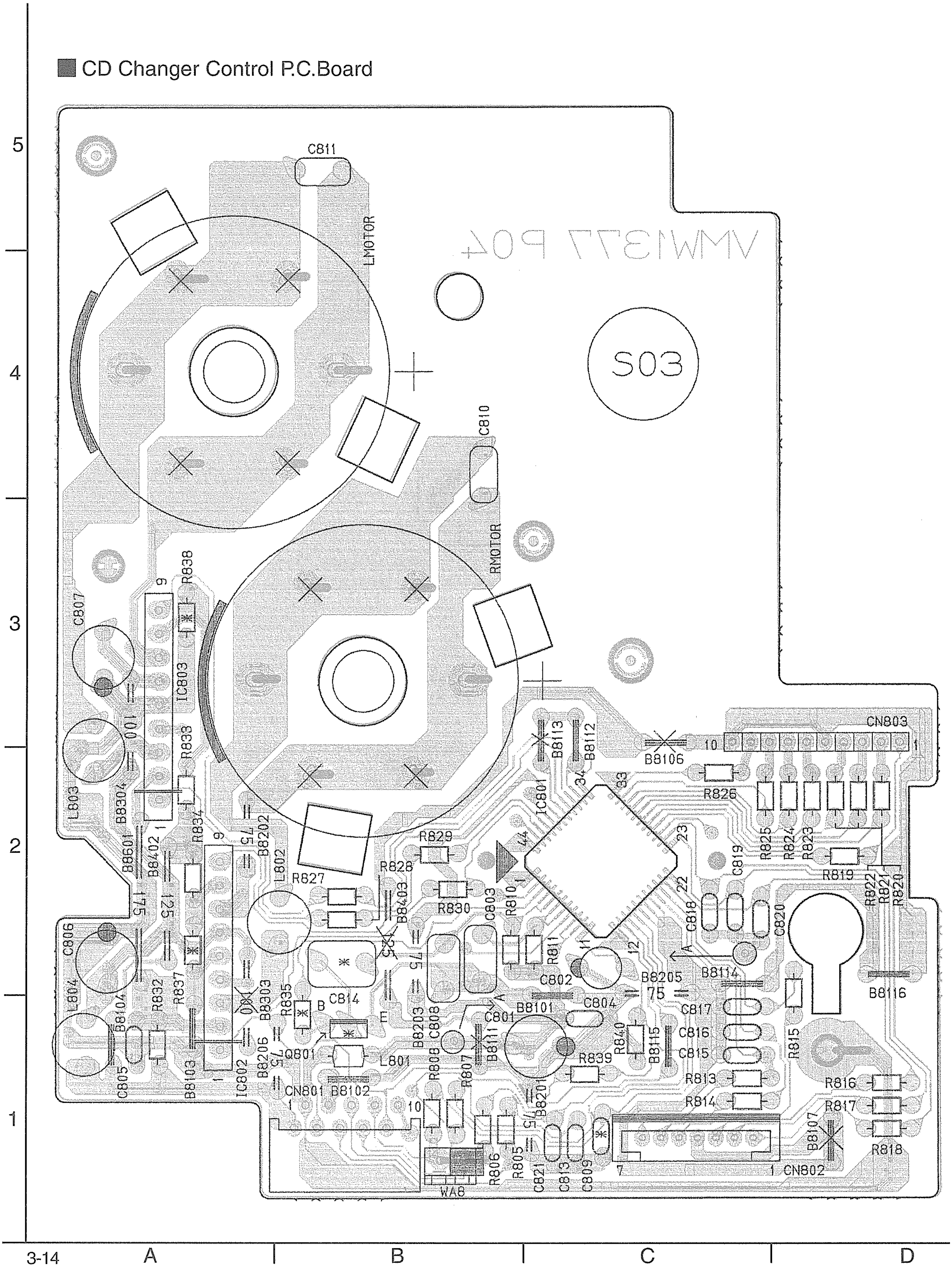

S425
S424
S423
CN476
5
6
1
2
VMW1463A
P01
T01

2

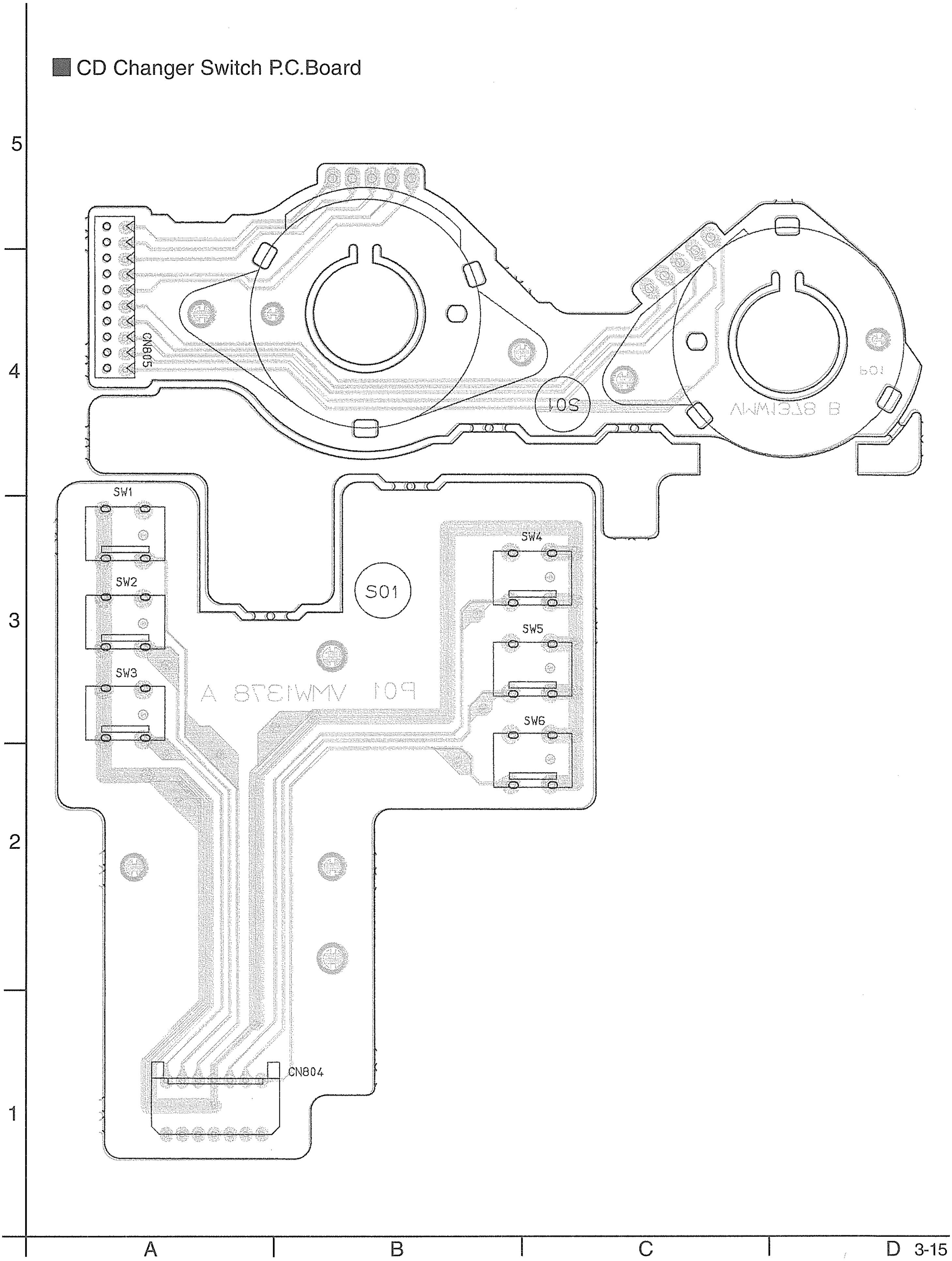
1

A B C D

■ CD Changer Control P.C.Board


5
4
3
2
1
A
B
C
D
C811
LMOTOR
VMW1377 P04
S03
C810
RMOTOR
C807
R838
IC803
R833
B8304
L803
R834
B8601
B8402
B8202
L802
R827
R828
R829
B8403
R830
C803
R810
IC801
B8113
B8112
B8106
CN803
R826
R825
R824
R823
R819
R822
R821
R820
C819
C818
C820
B8114
B8116
C806
L804
R832
R837
B8104
C805
B8103
IC802
B8303
B8206
R835
Q801
CB14
L801
CN801
B8102
B8203
C808
R808
R807
B8111
C801
B8101
R811
C802
C804
B8205
C817
C816
C815
R840
B8115
R839
R813
R814
R815
R816
R817
R818
B8107
CN802
B8201
R806
R805
C821
C813
C809
WA8
100
175
125
75
10
34
33
44
23
22
11
12
9
7

CD Changer Switch P.C.Board


5
4
3
2
1
A
B
C
D
CN805
S01
SW1
SW2
SW3
SW4
SW5
SW6
S01
P01 VMW1378 A
CN804

-MEMO-

PARTS LIST

[CA-MD9R]

* All printed circuit boards and its assemblies are not available as service parts.

Area Suffix

BS.............. the U.K
EF...............Continental Europe
EN.............. North Europe
G.................Germany

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Electrical Parts List 4-20
(Amp P.C.B.) 4-20
(Input P.C.B.) 4-24
(Front P.C.B.) 4-27
(Changer Control P.C.B.) 4-30
(CD Select Switch P.C.B.) 4-31
(MD Servo P.C.B.) 4-32
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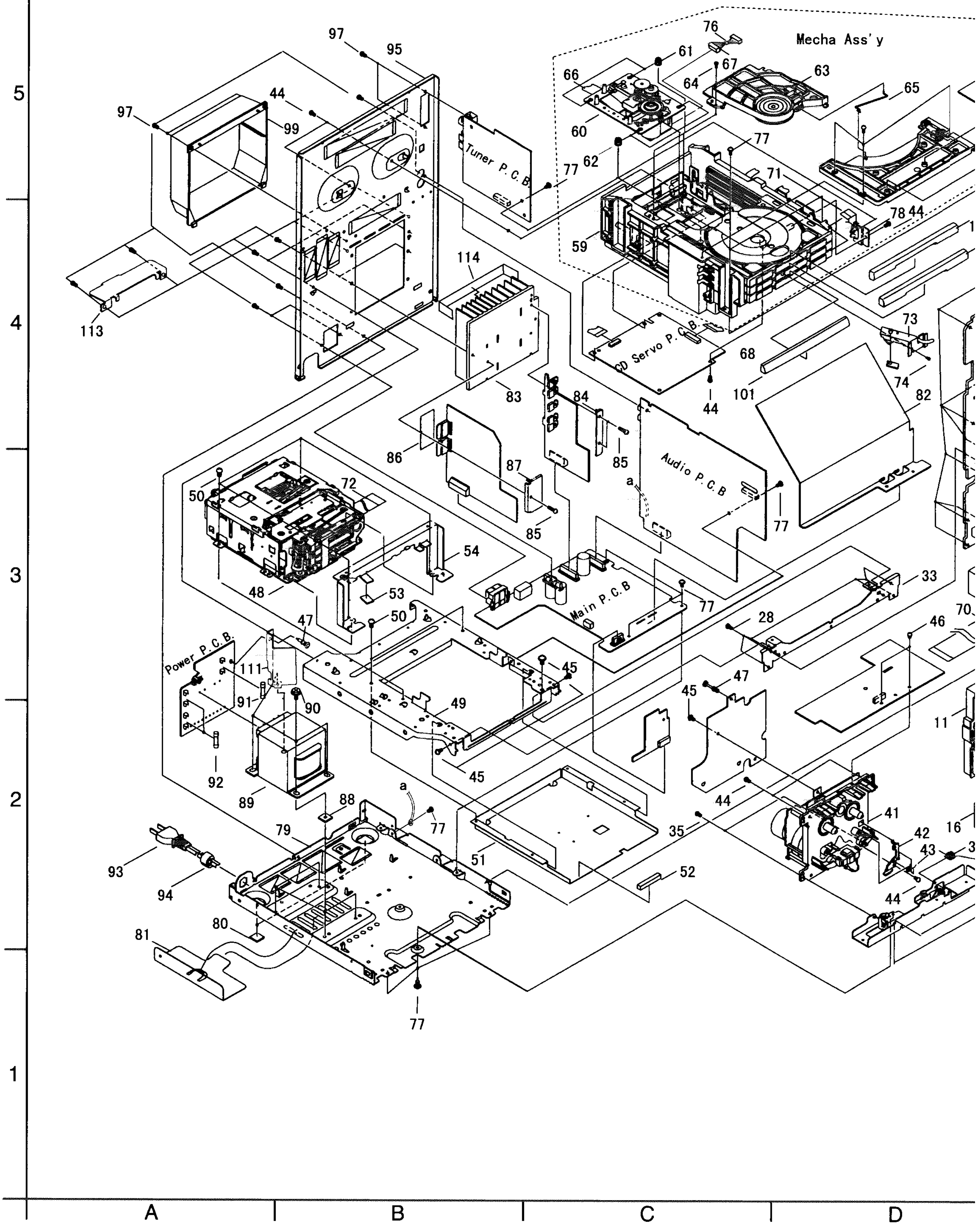
Accessories List 4-36
Packing Materials and Parts List 4-37

-MEMO-

General Exploded View and Parts List

Block No. M 1 M M


5
4
3
2
1
A
B
C
D
97
95
76
Mecha Ass'y
61
67
66
64
63
65
97
44
99
60
77
Tuner P.C.B
62
77
71
59
78
44
114
113
73
CD Servo P.C.B
68
83
84
44
101
74
82
86
85
87
Audio P.C.B
a
50
72
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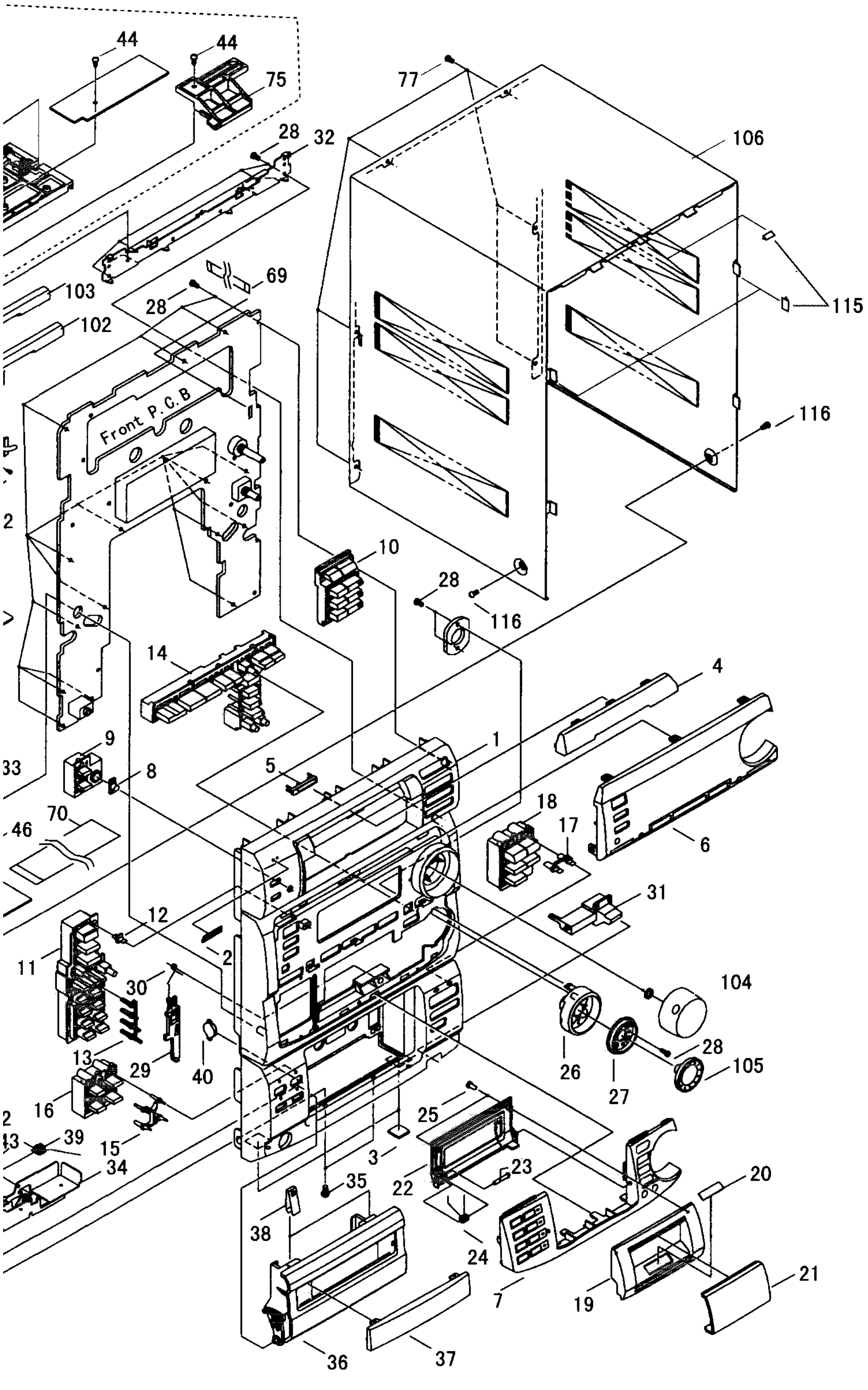

Front P.C.B

■Parts list

Block No. M1MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	LE10147-004A	FRONT PANEL	1		
	2	E406971-001SM	JVC MARK	1		
	3	E75896-002	SPACER	2		
	4	LE20313-001A	CD LENS	1		
	5	LE30525-001A	L.E.D.INDICATOR	1		
	6	LE10149-006A	WINDOW SCREEN	1		
	7	LE10151-002A	ORNAMENT PLATE	1		
	8	E408131-001	REMOCON PLATE	1		
	9	E310060-001ST	PUSH BUTTON	1		
	10	E209020-003ST	PUSH BUTTON	1		
	11	LE20314-004A	PUSH BUTTON	1		
	12	LE40342-001A	INDICATOR LENS	1		
	13	LE30528-001A	INDICATOR LENS	1		
	14	LE20317-004A	PUSH BUTTON	1		
	15	E310066-001ST	INDICATOR LENS	1		
	16	E209029-001ST	PUSH BUTTON	1		
	17	E310067-001ST	INDICATOR LENS	1		
	18	E209031-001ST	PUSH BUTTON	1		
	19	LE10153-001A	MD DOOR	1		
	20	LE40343-003A	DOOR PLATE	1		
	21	LE30533-003A	MD LENS	1		
	22	LE20320-001A	BACK PANEL	1		
	23	LE40345-001A	SHAFT PIN	1		
	24	LE40346-001A	SPRING	1		
	25	E69897-002	RUBBER CUSHION	2		
	26	LE30535-001A	RING	1		
	27	LE30536-001A	INDICATOR LENS	1		
	28	QYSDSF2608Z	SCREW	29		
	29	E310068-001	EJECT LEVER	1		
	30	E408742-001	SPRING	1		
	31	E209033-001ST	EJECT BUTTON	1		
	32	LE30539-001A	ARM BRACKET	1		
	33	LE30540-001A	ARM BRACKET	1		
	34	E209046-001	HOLDER BRACKET	1		
	35	QYSBST3006Z	TH TAP SCREW	4		
	36	LE10155-002A	CASSETTE HOLDER	1		
	37	LE20321-001A	CASSETTE LENS	1		
	38	E406713-001	CASSETE SPRING	2		
	39	E408933-001	HOLDER SPRING	1		
	40	E304434-005	DAMPER ASSY	1		
	41	――――――	CASSETTE MECHA ASSY	1	PF	
	42	E309477-222	EJECT STOPPER	1		
	43	E407801-002	SPRING	1		
	44	QYSBSF3008Z	SCREW	9		
	45	QYSBSGG3008Z	TAP.SCREW	4		
	46	QYSBST2604Z	SCREW	2		
	47	E48729-008	PLASTIC RIVET	2		
	48	――――――	3MD CHANGER MECHA	1		
	49	LE10143-001A	CHASSIS BASE	1		
	50	QYSBSG3008Z	T.SCREW	6		
	51	LE20322-001A	SUB BRACKET	1		
	52	LV30064-003A	FELT SPACER	1		
	53	LV30064-010A	FELT SPACER	1		
	54	LV30090-001A	SUB BRACKET	1		

■Parts list

Block No. M1MM

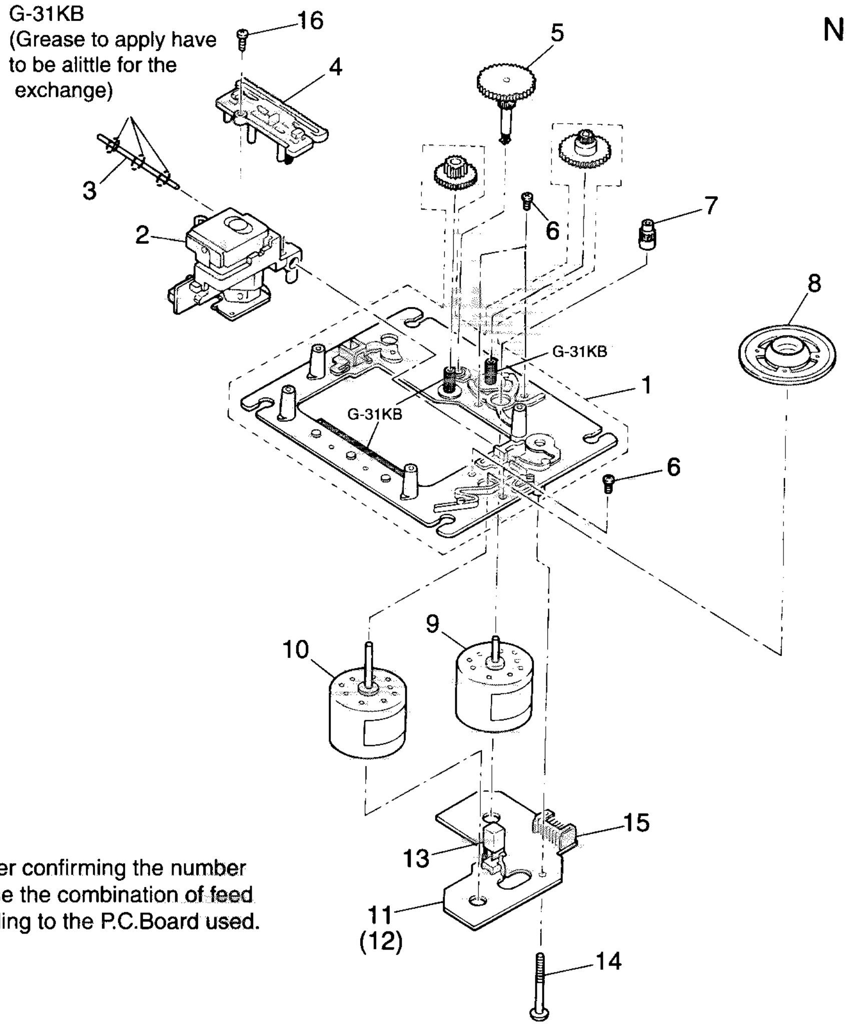
⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	59	————————	3CD CHANGER MECHA	1		
	60	————————	CD MECHA. ASS'Y	1		
	61	FMYH4003-001	INSULATOR	2		
	62	FMYH4003-002	INSULATOR	2		
	63	VKS3703-00FMMKP	CLAMPER ASSY	1		
	64	QYSPST2606Z	SCREW	1		
	65	VKW5187-001	ROD	1		
	66	QUQ110-1509AJ	FLAT WIRE	1		
	67	VDM1001-S001A	SOCKET WIRE ASSY	1		
	68	VWF1217-08TTB	FLAT WIRE	1		
	69	VWF1223-16TTB	FLAT WIRE	1		
	70	VWF1225-10TTB	FLAT WIRE	1		
	71	VWF1210-08TTB	FLAT WIRE	1		
	72	VWF1021-16PPA	FLAT WIRE	1		
	73	E309526-001SM	TRANSISTOR HOLDER	1		
	74	QYSBSG3006Z	T. SCREW	1		
	75	E309662-001	DISK STOPPER	1		
	76	VYSA1R2-033	SPACER	1		
	77	QYSBSGG3008E	T. SCREW	17		
	78	E409422-001	MECHA BRACKET	1		
	79	E102616-230SM	CHASSIS BASE	1		
	80	E75896-006	FELT SPACER	2		
	81	E310075-001	PROTECTOR COVER	1		
	82	E310079-002	SHIELD COVER	1		
	83	E310077-006ST	HEAT SINK	1		
	84	E407434-001SM	LEAF SPRING	1		
	85	QYSBSG3014E	T. SCREW	3		
	86	FMPK4003-001	MICA SHEET	1		
	87	FMKL4007-001	HEAT SINK BRACKET	1		
	88	E407337-001	SPACER	4		
⚠	89	QQT0180-001	POWER TRANSFORMER	1		
	90	E61661-003	SPECIAL SCREW	4		
⚠	91	QMF51E2-1R0-J1	FUSE	1	F001	
⚠	92	QMF51E2-3R15-J1	FUSE	2	F101, F102	
⚠	93	QMP39E0-200	POWER CORD	1		EF EN G
⚠		QMP5530-0085BS	POWER CORD	1		BS
	94	QHS3876-162	CORD STOPPER	1		
	95	LE10145-004A	REAR PANEL	1		
	97	QYSBSGY3008E	SPECIAL SCREW	14		
	99	E207356-001SM	REAR COVER	1		
	101	E209037-003ST	CD FITTING	1		
	102	E209039-003ST	CD FITTING	1		
	103	E209041-003ST	CD FITTING	1		
	104	LE30537-002A	VOLUME KNOB	1		
	105	LE30538-001A	PUSH KNOB	1		
	106	E103232-001(S)	METAL COVER	1		
	111	LV30374-001A	PROTECTOR COVER	1		
	113	LV30371-001A	SUB BRACKET	1		
	114	EX0150010H09S11	FELT SPACER	1		
	115	LV30064-008A	FELT SPACER	3		
	116	QYSDSG3006M	T. SCREW	2		

CD Mechanism Ass'y and Parts List

■Grease Point

Block No. M 2 M M

No.EXL-M6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NOTE
Please order moutor after confirming the number of the P.C.Board because the combination of feed motor is different according to the P.C.Board used.

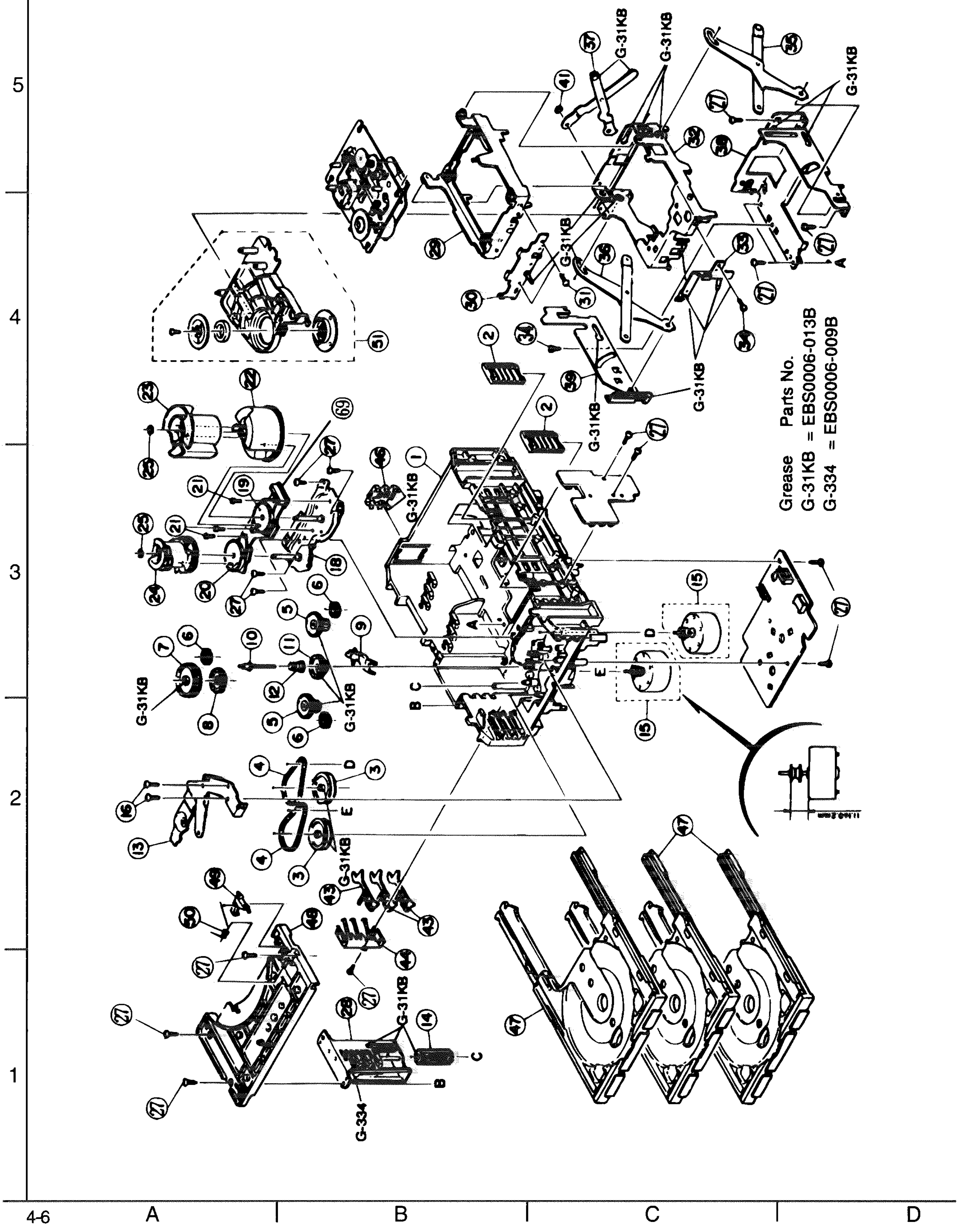
■CD Mechanism Assembly Parts List

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	EPB-002PK	MECHA. BASE ASSY	1		
	2	OPTIMA-150S	OPTICAL PICK UP	1		
	3	E407782-001	CD SHAFT	1		
	4	E307746-001	CD RACK	1		
	5	EPB-003A	MECHA GEAR	1		
	6	SDSP2003N	SCREW	4		
	7	E406750-001	PINION GEAR	1		
	8	EPB309173A	TURN TABLE	1		
	9	E406784-001	FEED MOTOR	1	Use the No.11 P.C.Board	
		MDN-4RA3ETA-1	FEED MOTOR	1	Use the No.12 P.C.Board	
	10	E406783-001	SPINDLE MOTOR	1		
	11	EMW10190-001 (S)	P. C. BOARD	1		
	12	EMW10190-221 (S)	P. C. BOARD	1		
	13	ESB1100-005	LEAF SWITCH	1		
	14	E75832-001	SCREW	1		
	15	EMV5109-006B	CONN. TERMINAL	1		
	16	SDSF2006Z	SCREW	1		

CD Changer Mechanism Ass'y and Parts List

Block No. M 3 M M

■ Grease Point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Grease	Parts No.
G-31KB	= EBS0006-013B
G-334	= EBS0006-009B

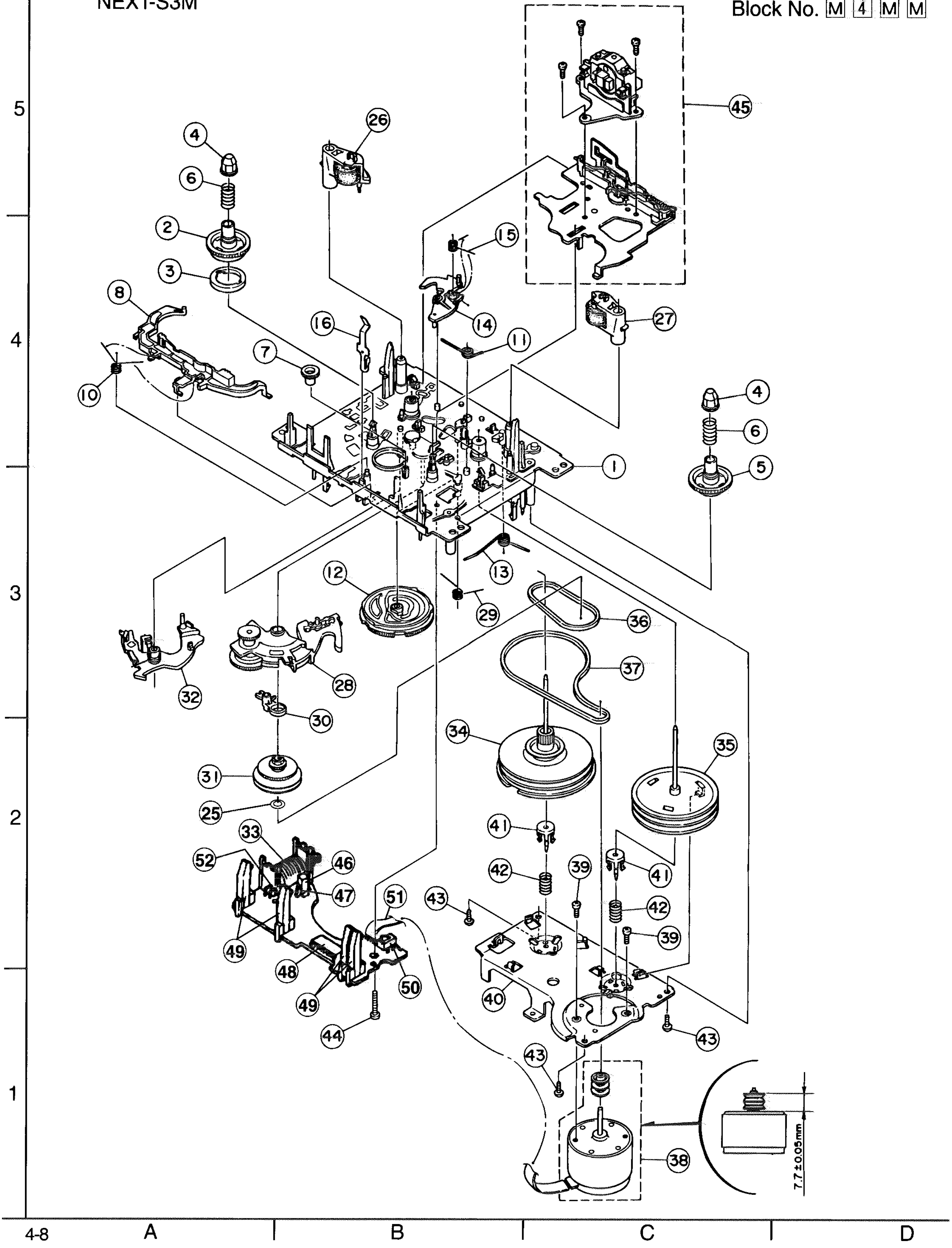
■ Parts List (Changer Mechanism Ass'y) Block No. M3MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	VKS1144-003	CHASSIS BASE	1		
	2	VKS3698-003	TRAY GUIDE	2		
	3	VKS5532-003	PULLEY GEAR	2		
	4	VKB3000-164	DRIVE BELT	2		
	5	VKS5505-003	GEAR B	2		
	6	VKS5506-002	GEAR C	3		
	7	VKS5507-002	CROSS GEAR U	1		
	8	VKS5508-002	CROSS GEAR L	1		
	9	VKS5510-003	SELECT LEVER	1		
	10	VKH5769-001	GEAR STUD	1		
	11	VKS5511-002	SELECT GEAR	1		
	12	VKW5155-003	COMPRESS SPRING	1		
	13	VKM3846-002	GEAR BRACKET	1		
	14	VKS5509-002MM	CYLINDER GEAR	1		
	15	MSN5D257A-SA2	DC MOTOR	2		
	16	DPSP2616Z	SCREW	2		
	18	VKM3825-00AMM	CAM GEAR ASSY	1		
	19	VKZ3172-00A	CAM SW. R ASS'Y	1		
	20	VKZ3173-00A	CAM SW. L ASS'Y	1		
	21	SPST2606Z	TAPPING SCREW	3		
	22	VKS2263-002MM	CAM R1	1		
	23	VKS2264-002MM	CAM R2	1		
	24	VKS2265-002MM	CAM GEAR L	1		
	25	WDL316050	SLIT WASHER	2		
	27	SBSF2608Z	TAPPING SCREW	16		
	28	VKS3702-00FMM	DRIVE UNIT	1		
	29	VKS2247-004	MECHA HOLDER A	1		
	30	VKL7767-00B	MECHABRACKET	1		
	31	SBSF2606Z	TAPPING SCREW	2		
	32	VKM3860-00A	MECHA HOLDER ASSY	1		
	33	VKL7802-00C	MECHA HOLDER ASSY	1		
	34	SDST2604Z	SCREW	3		
	35	VKL7810-00A	LIFTER	1		
	36	VKL7811-00A	LIFTER	1		
	37	VKL7812-00A	LIFTER	1		
	38	VKL2732-002	LIFTER BASE	1		
	39	VKM3823-001	LIFTER BRACKET	1		
	41	WDL266035-2	SLIT WASHER	1		
	43	VKS5514-002MM	LOCK LEVER	3		
	44	VKY3133-002MM	RETURN SPRING	1		
	46	VKY3134-003MM	CLICK SPRING	1		
	47	VKS2252-00EKP	TRAY ASS'Y	3		
	48	VKS2250-003	TOP BRACKET	1		
	49	VKS5515-002	S.TRAY STOPPER	1		
	50	VKW5156-004	TORSION SPRING	1		
	51	VKS3703-00FMMKP	CLAMPER ASS'Y	1		
	69	QGB2021L1-10	CONNECTOR	1		

Cassette Mechanism Ass'y and Parts List

NEXT-S3M

Block No. M 4 M M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■Parts List (Cassette Mechanism Ass'y) NEXT-S3M

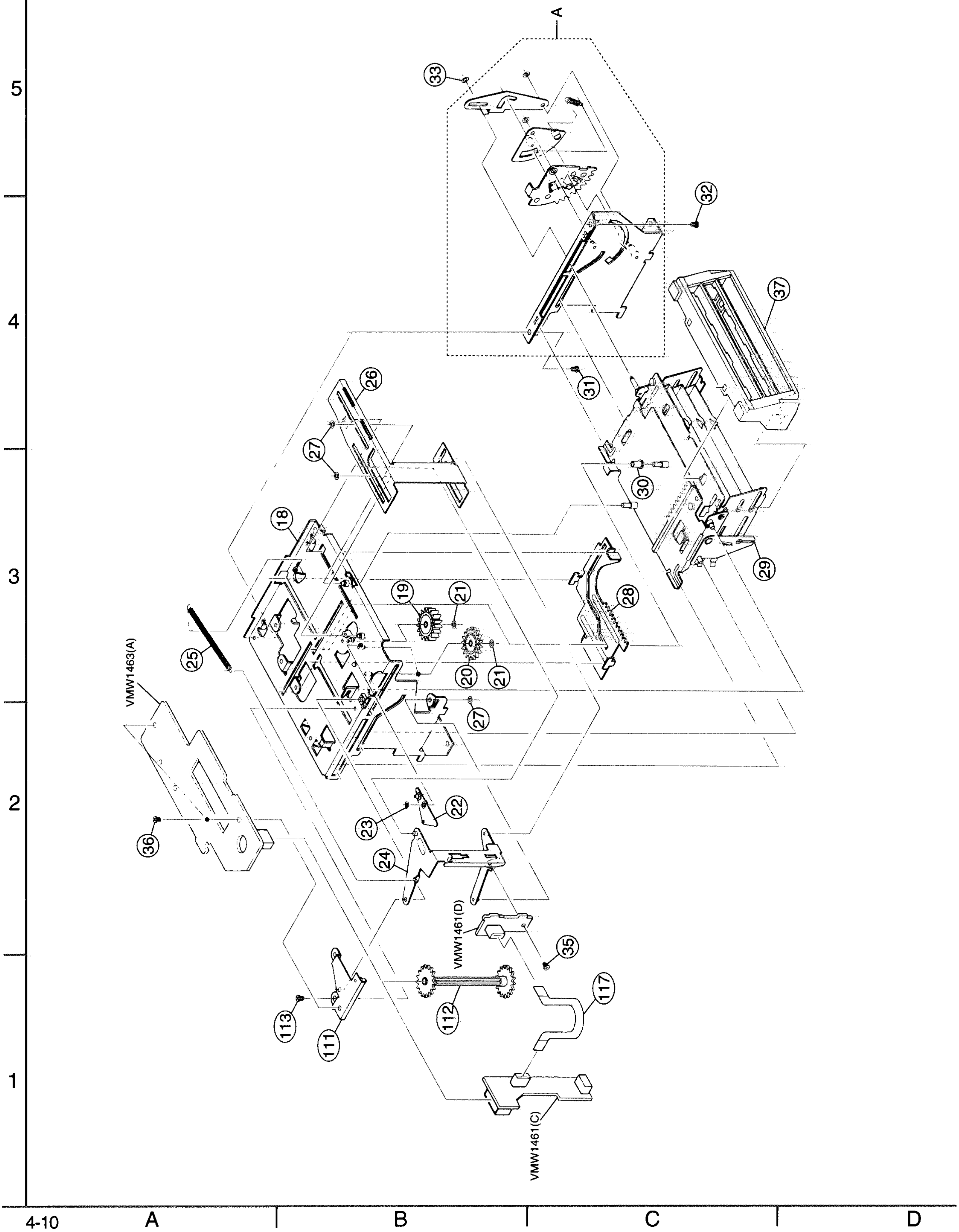
M4MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	VKS1147-00BKP	CHASSIS BASE ASSY	1		
	2	VKS3707-002	REEL GEAR	1		
	3	VKZ4690-002	MAGNET	1		
	4	VKS3708-002	REEL FEATHER	2		
	5	VKS3707-002	REEL GEAR	1		
	6	VKW5162-002	B.T. SPRING	2		
	7	VKS5519-002	IDLER GEAR	1		
	8	VKS2261-002	REEL BRAKE	1		
	10	VKW5178-001	BRAKE SPRING	1		
	11	VKW5202-002	LIFTER SPRING	1		
	12	VKS1150-002	CONTROL CAM	1		
	13	VKW5170-002	CAM SPRING	1		
	14	VKS2255-001	DIR. TRIGGER	1		
	15	VKW5163-001	DIR. SPRING	1		
	16	VKY4670-001	CASSETTE SPRING	1		
	25	WDL123525-0	SLIT WASHER	1		
	26	VKP4231-00B	P.ROLLER(R) ASSY	1	(R)	
	27	VKP4232-00B	P.ROLLER(L) ASSY	1	(L)	
	28	VKS3714-00B	FR ARM ASSY	1		
	29	VKW5173-001	FR SPRING	1		
	30	VKS3719-002	ELEVATOR RING	1		
	31	VKS5596-00AKP	MAIN PLY ASSY	1		
	32	VKS5525-00B	TRIGGER ARM ASSY	1		
	33	VKZ3174-00AKP	DC SOLENOID	1		
	34	VKF3200-00A	F.WHEEL(R) ASSY	1	(R)	
	35	VKF3202-00A	F.WHEEL(L) ASSY	1	(L)	
	36	VKB3000-167	REEL BELT	1		
	37	VKB3000-160	CAPSTAN BELT	1		
	38	MSI5B2LW-SA4	DC MOTOR ASSY	1		
	39	QYSPSP2603Z	SCREW	2		
	40	VKM3833-001	FM BRACKET	1		
	41	VKS5524-001	THRUST GUIDE	2		
	42	VKW5177-002	THRUST SPRING	2		
	43	QYSBSF2608Z	T.SCREW	3		
	44	QYSDST2612Z	SCREW	1		
	45	VKM3890-00A	HEAD BASE ASSY	1		
	46	DN6851-HI	HALL IC	1	IC 1	
	47	VKS3630-001MM	IC HOLDER	1		
	48	QGB1214K1-12S	CONNECTOR	1	CN1	
	49	MXS00220MVL0	CASSETTE SWITCH	4	S1, S2 S4, S5	
	50	QSW0507-001	SWITCH	1	S6	
	51	EWR34D-09CS	FLAT WIRE	1	FW1	
	52	1SR139-400	SI DIODE	1	D1	

MD Mechanism Ass'y and Parts List

EMU-DC3B 1/4

Block No. M 5 M M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■Parts List (MD Mechanism Ass'y 1/4)

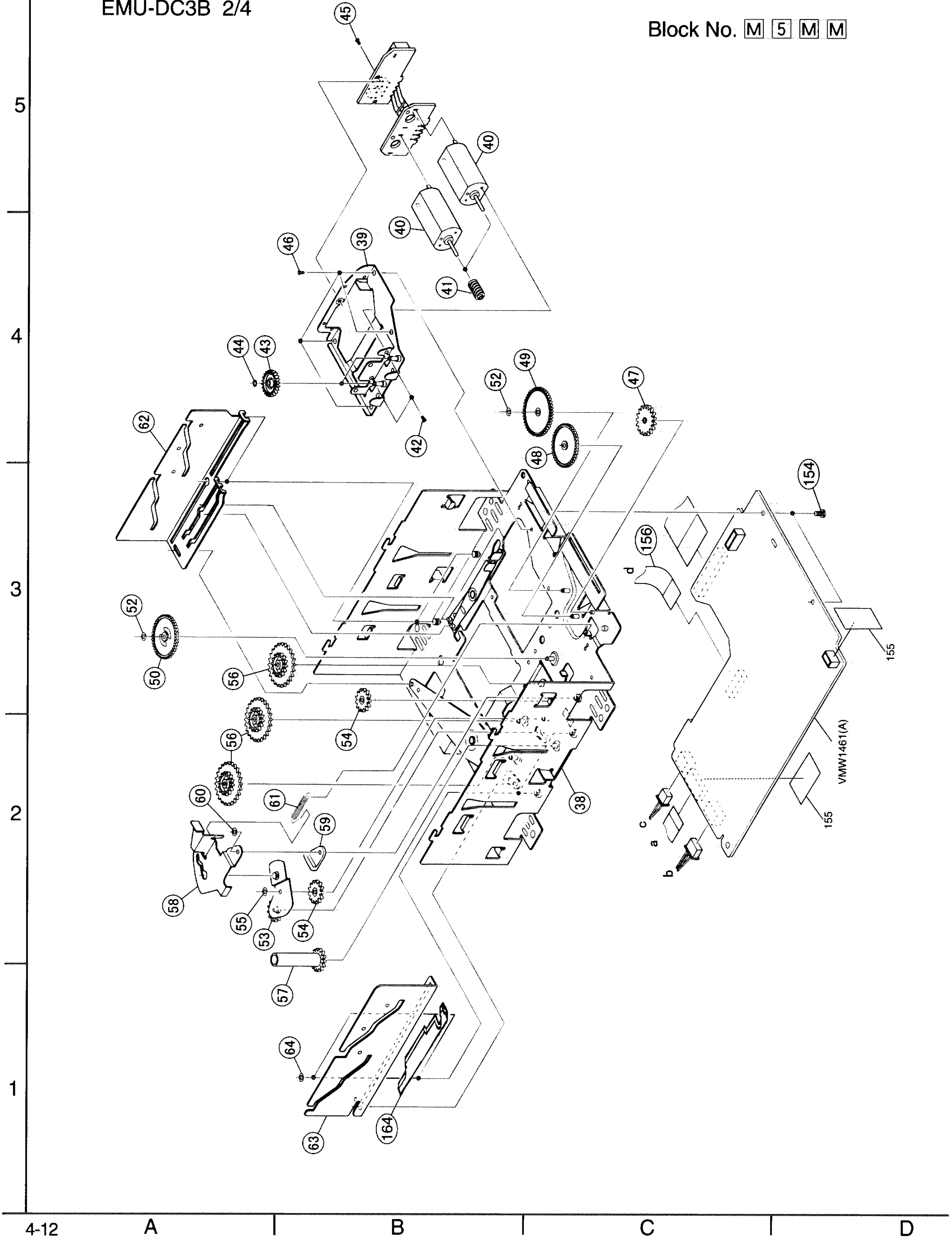
Block No. M5MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	A	LE30619-001A	SIDE BASE ASSY	1		
	18	LE20386-003AT	T.BASE SUB ASSY	1		
	19	LE40373-001A	L.GEAR	1		
	20	LE40398-001A	GEAR G5	2		
	21	WDL163525-6	SLIT WASHER	3		
	22	LE40499-001A	LINK(F) ASSY	1		
	23	WDL123025-4	SLIT WASHER	1		
	24	LE30617-003A	SW BASE ASSY	1		
	25	LE40391-006A	TEN.SPRING	1		
	26	LE30618-002A	LINK(A) ASSY	1		
	27	WDL163525-6	SLIT WASHER	3		
	28	LE30584-002A	CAM PLATE	1		
	29	LE10169-003SA	STOCK BASE ASSY	1		
	30	LE40525-002A	ST.ROLLER	1		
	31	QYSPSGU2025M	TAP SCREW	1		
	32	QYSPSGU2025M	TAP SCREW	1		
	33	WDL163525-6	SLIT WASHER	1		
	35	QYSPSGU2035Z	SCREW	1		
	36	QYSPSGU2035Z	SCREW	2		
	37	LE10166-002A	F.COVER	1		
	111	LE40439-002A	GEAR BASE ASSY	1		
	112	LE30581-003A	GEAR (C)	1		
	113	QYSPSGU2035Z	SCREW	1		
	117	VMW3702-001	PW BOARD	1		

MD Mechanism Ass'y and Parts List

EMU-DC3B 2/4

Block No. M 5 M M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■Parts List (MD Mechanism Ass'y 2/4)

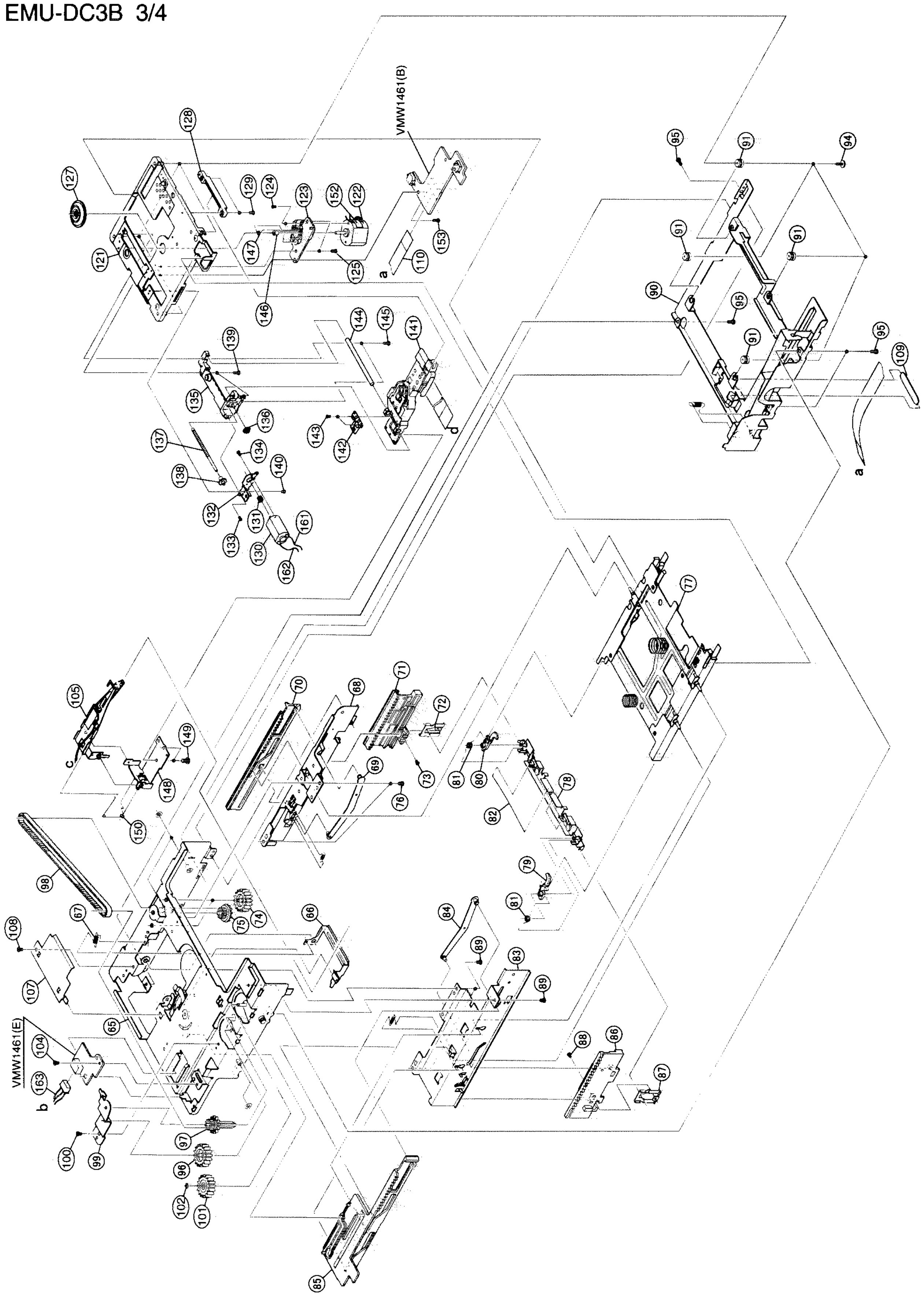
Block No. M5MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	38	LE30622-005AT	MECHA BASE ASSY	1		
	39	LE40442-001A	MOTOR BKT ASSY	1		
	40	FF-050SK-11170	DC MOTOR	2		
	41	LE40392-001A	WORM	2		
	42	QYSPSPT2020M	MINI SCREW	2		
	43	LE40393-002A	W.WHEEL	2		
	44	WDL163525-6	SLIT WASHER	2		
	45	QYSPSGU2035Z	SCREW	1		
	46	QYSPSGU2035Z	SCREW	4		
	47	LE40398-001A	GEAR G5	1		
	48	LE40394-001A	GEAR G1	1		
	49	LE40395-001A	GEAR G2	1		
	50	LE40394-002A	GEAR G1	1		
	52	WDL163525-6	SLIT WASHER	2		
	53	LE40443-003A	C.LINK(2) ASSY	1		
	54	LE40396-001A	GEAR G3	2		
	55	WDL163525-6	SLIT WASHER	1		
	56	LE40397-001A	GEAR G4	3		
	57	LE40411-001A	GEAR J1	1		
	58	LE30599-003A	C.LINK(1)	1		
	59	LE40517-001A	C.MOUNT	1		
	60	WDL163525-6	SLIT WASHER	1		
	61	LE40453-002A	TEN.SPRING	1		
	62	LE30595-001A	CAM(R)	1		
	63	LE30594-001A	CAM(L)	1		
	64	WDL163525-6	SLIT WASHER	2		
	154	QYSPSGU2035Z	SCREW	2		
	155	VYSA1R4-056	SPACER	2		
	156	EMW30028-001	FPC CABLE	1		
	164	LV40225-001A	ELE.SPACER	1		

MD Mechanism Ass'y and Parts List

Block No. M 5 M M

EMU-DC3B 3/4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■Parts List (MD Mechanism Ass'y 3/4)

Block No. M5MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	65	LE30690-001A	ELE. BASE S. UNIT	1		
	66	LE30578-004A	H. LIFTER	1		
	67	LE40364-001A	SPRING	1		
	68	LE30625-003A	R. G. BASE (R) ASSY	1		
	69	LE40445-002A	LINK (R) ASSY	1		
	70	LE20380-002A	RACK (W2R)	1		
	71	LE20378-002A	RACK (W1R)	1		
	72	LE30592-001A	HOOK BKT	1		
	73	QYSPSPU1420M	MINI SCREW	1		
	74	LE40360-001A	GEAR W3	2		
	75	LE40359-001A	T. GEAR (R)	1		
	76	QYSPSGU2035Z	SCREW	2		
	77	LE30628-004A	C. HOLDER UNIT	1		
	78	LE30691-002A	HOOK SUB UNIT	1		
	79	LE30571-001A	HOOK (L)	1		
	80	LE30572-001A	HOOK (R)	1		
	81	LE40367-001A	T. SPRING	2		
	82	LE40368-001A	SPRING BAR	1		
	83	LE30626-003A	R. G. BASE (L) ASSY	1		
	84	LE40446-002A	LINK (L) ASSY	1		
	85	LE20381-003A	RACK (W2L)	1		
	86	LE20379-002A	RACK (W1L)	1		
	87	LE30592-001A	HOOK BKT	1		
	88	QYSPSPU1420M	MINI SCREW	1		
	89	QYSPSGU2035Z	SCREW	3		
	90	LE30630-002A	T. MT. BASE ASSY	1		
	91	VYH8096-001	CUSHION	4		
	94	VKZ4761-001	SPECIAL SCREW	4		
	95	QYSPSGU2035Z	SCREW	4		
	96	LE40360-001A	GEAR W3	1		
	97	LE40358-002A	T. GEAR (L)	1		
	98	26S2M230. 0UG	TIMING BELT	1		
	99	LE40363-001A	T. G. BKT	1		
	100	QYSPSGU2035Z	SCREW	1		
	101	LE40458-002A	GEAR W4	1		
	102	WDL163525-6	SLIT WASHER	1		
	104	QYSPSGU2035Z	SCREW	1		
	105	HMD-8B	HEAD UNIT	1		
	107	LE30579-003A	HEAD COVER	1		
	108	QYSPSGU2035Z	SCREW	1		
	109	LE40460-001A	PLATE	1		
	110	VWF1008-10TTA	FFC CABLE	1		
	121	LE20387-003A	TM BASE SUB ASSY	1		
	122	FF-110PH-08280S	SP. MOTOR	1		
	123	LE20327-001A	S. MOTOR BASE	1		
	124	QYSPSPU1720N	MINI SCREW	2		
	125	QYSPSPU1725M	MINI SCREW	2		
	127	LE30470-001A	TURN TABLE ASSY	1		
	128	VKS5573-002	PICK UP GUIDE	1		
	129	QYSPSPU1435N	MINI SCREW	2		
	130	FF-M20VK-7Z170	FEED MOTOR	1		
	131	VKR4752-001	MOTOR GEAR	1		
	132	VKL7870-00F	MOTOR BKT ASSY	1		
	133	VKZ4803-001	SPECIAL SCREW	1		

■Parts List (MD Mechanism Ass'y 3/4)

Block No. M5MM

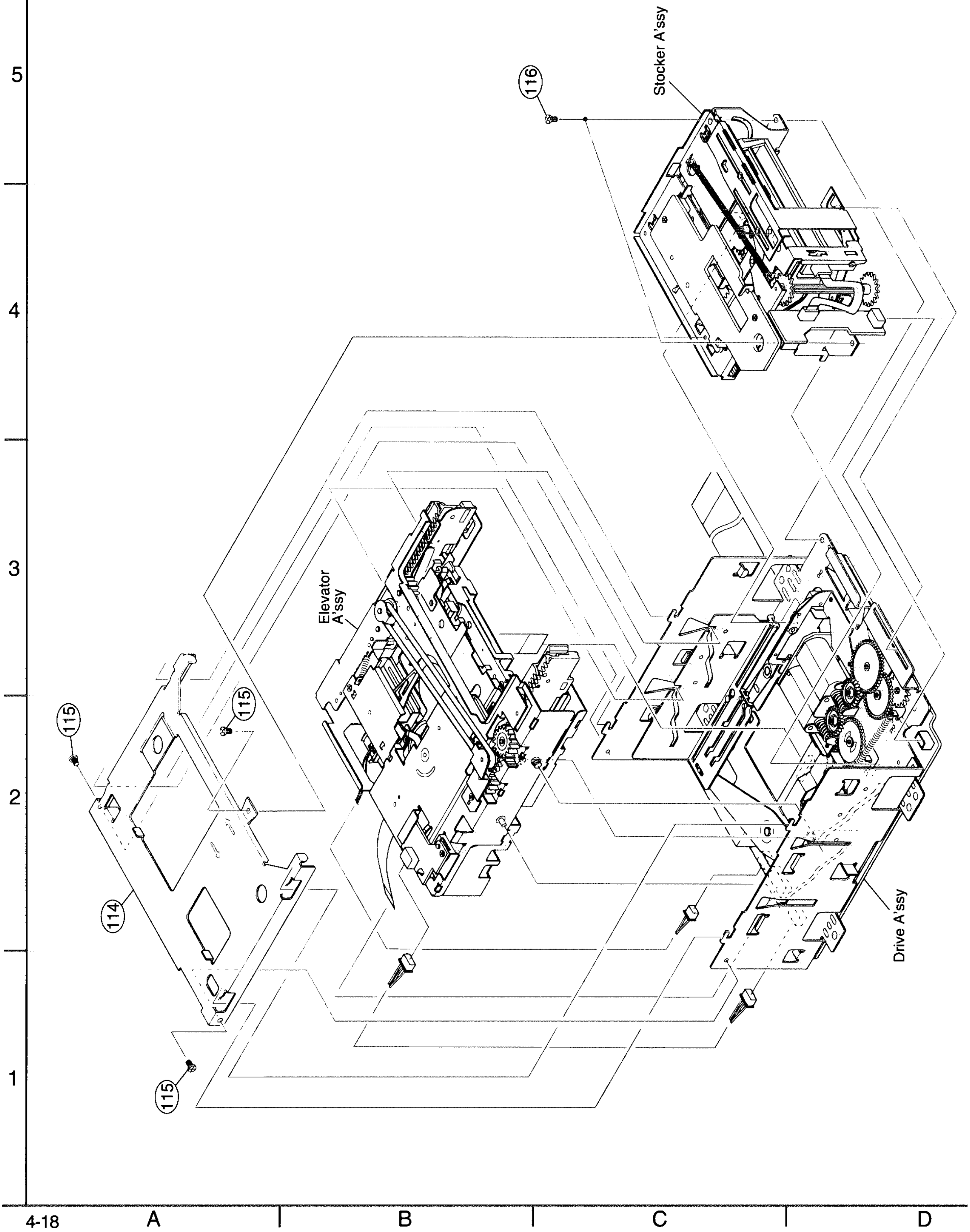
⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	134	QYSPSPT1414M	MINI SCREW	1		
	135	VKS5572-00B	FEED HOLDER ASSY	1		
	136	VKR4753-001	MIDDLE GEAR	1		
	137	LE40353-002A	SCREW SHAFT	1		
	138	VKR4756-002	S.SHAFT GEAR	1		
	139	QYSPSPU1435M	MINI SCREW	2		
	140	QYSPSPT1414M	MINI SCREW	1		
	141	KMS-260A	MD PICK UNIT	1		
	142	VKL7873-002	RACK SPRING	1		
	143	QYSPSPT1414M	MINI SCREW	2		
	144	VKH5803-001	GUIDE SHAFT	1		
	145	LE40348-002A	S.SCREW	2		
	146	LE40515-001A	COLLAR	1		
	147	LE40516-001A	SPRING	1		
	148	VKM3695-00C	HEAD JOINT ASSY	1		
	149	QYSPSPU1725M	MINI SCREW	2		
	150	LE40355-003A	SPRING HEAD	1		
	152	VYSA1R3-041	SPACER	1		
	153	QYSPSPU1750M	MINI SCREW	1		
	161	VWE299-04AZAZ	UL VINYL WIRE	1		
	162	VWE291-05AZAZ	UL VINYL WIRE	1		
	163	VDM1045-001MA	WIRE TUBE	1		

-MEMO-

MD Mechanism Ass'y and Parts List

EMU-DC3B 4/4

Block No. M 5 M M


5
4
3
2
1
116
Stocker A'ssy
Elevator A'ssy
115
115
115
114
Drive A'ssy
A
B
C
D

■Parts List (MD Mechanism Ass'y 4/4)

Block No. M5MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	114	LE20382-002A	TOP COVER	1		
	115	QYSPSGU2035Z	SCREW	3		
	116	QYSPSGU2035Z	SCREW	2		

■Electrical Parts List (Amp P.C.B.)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC051	TDA7294	I.C(M)	
	IC052	TDA7294	I.C(M)	
	IC541	HA12206NT	I.C(MONO-ANALOG)	
	IC561	HA12136A	I.C(MONO-ANALOG)	
	IC601	AN8806SB	I.C(MONO-ANALOG)	
	IC602	BA6897FP-W	I.C(MONO-ANALOG)	
	IC603	MN35510	I.C(DIGI-MOS)	
		DIODES		
	D071	1SS133-T2	SI.DIODE	
	D072	1SS133-T2	SI.DIODE	
	D081	1SS133-T2	SI.DIODE	
	D091	MTZJ4.3B-T2	ZENER	
	D092	1SS133-T2	SI.DIODE	
	D095	1SS133-T2	SI.DIODE	
⚠	D201	1N5402M-20	DIODE	
⚠	D202	1N5402M-20	DIODE	
⚠	D203	1N5402M-20	DIODE	
⚠	D204	1N5402M-20	DIODE	
⚠	D211	11E2-T5	SILICON	
⚠	D212	11E2-T5	SILICON	
⚠	D213	11E2-T5	SILICON	
⚠	D214	11E2-T5	SILICON	
⚠	D215	11E2-T5	SILICON	
⚠	D216	11E2-T5	SILICON	
	D231	MTZJ13C-T2	ZENER	
	D232	MTZJ12C-T2	ZENER	
	D241	MTZJ9.1A-T2	ZENER	
	D242	MTZJ13C-T2	ZENER	
	D251	MTZJ5.1B-T2	ZENER	
	D252	MTZJ11C-T2	ZENER	
	D255	MTZJ6.8C-T2	ZENER	
	D261	11E2-T5	SILICON	
	D262	11E2-T5	SILICON	
	D263	11E2-T5	SILICON	
	D271	MTZJ5.6C-T2	ZENER	
	D280	11E2-T5	SILICON	
	D281	11E2-T5	SILICON	
	D282	11E2-T5	SILICON	
	D283	MTZJ36C-T2	ZENER	
	D285	MTZJ8.2C-T2	ZENER	
	D291	1SS133-T2	SI.DIODE	
	D292	1SS133-T2	SI.DIODE	
	D293	MTZJ5.1C-T2	ZENER	
	D294	1SS133-T2	SI.DIODE	
	D295	1SS133-T2	SI.DIODE	
	D555	MTZJ7.5C-T2	ZENER	
	D556	MTZJ7.5C-T2	ZENER	
	D585	11E2-T5	SILICON	
	D691	MTZJ5.6C-T2	ZENER	
	D891	MTZJ2.4B-T2	ZENER	
		TRANSISTORS		
	Q071	2SA970/GL/-T	SILICON	
	Q072	2SA970/GL/-T	SILICON	
	Q081	2SC945/QP/-T	SILICON	
	Q082	2SA733/QP/-T	SILICON	
	Q083	2SC1740S/RS/-T	SILICON	
	Q085	2SC945/QP/-T	SILICON	
	Q091	DTA144WSA-T	DIGITAL TRANSISTOR	
	Q092	DTC144ES	DIGITAL TRANSISTOR	
	Q202	DTA144ES	DIGITAL TRANSISTOR	
	Q204	DTC144ES	DIGITAL TRANSISTOR	
	Q229	2SC1740S/RS/-T	SILICON	
	Q230	2SA933AS/RS/-T	SILICON	
	Q231	2SD2061/EF/	SI.TRANSISTOR	
	Q232	2SB1565/EF/	SILICON	
	Q239	2SC1740S/RS/-T	SILICON	
	Q240	2SA933AS/RS/-T	SILICON	
	Q241	2SD2061/EF/	SI.TRANSISTOR	
	Q242	2SD2061/EF/	SI.TRANSISTOR	
	Q249	2SC945/QP/-T	SILICON	
	Q250	2SC945/QP/-T	SILICON	
	Q251	2SD2061/EF/	SI.TRANSISTOR	
	Q252	2SD2061/EF/	SI.TRANSISTOR	
	Q253	2SD2061/EF/	SI.TRANSISTOR	
	Q271	2SD2061/EF/	SI.TRANSISTOR	
	Q281	2SB1357/EF/-T	SILICON	
	Q291	DTC114YS	DIGITAL TRANSISTOR	
	Q292	DTC114YS	DIGITAL TRANSISTOR	
	Q293	DTC114YS	DIGITAL TRANSISTOR	
	Q581	2SA933AS/RS/-T	SILICON	
	Q582	DTC144ES	DIGITAL TRANSISTOR	
	Q585	2SA934/QR/-T	SILICON	
	Q586	DTC123YS	DIGITAL TRANSISTOR	
	Q601	2SA952/LK/-T	SILICON	
	Q691	2SC2060/QR/-T	SILICON	
	Q890	2SK301/PQ/-T	F.E.T	
	Q891	2SD2144S/VW/-T	SILICON	
	Q892	2SD2144S/VW/-T	SILICON	
	Q899	DTA144ES	DIGITAL TRANSISTOR	
		CAPACITORS		
	C050	QFVJ1HJ-103Z	0.01MF 50V T.FILM	
	C051	QETB1HM-105	1MF 50V AL E.CAP.	
	C052	QETB1HM-105	1MF 50V AL E.CAP.	
	C053	QCS21HJ-101A	100PF 50V CER.CAP.	
	C054	QCS21HJ-101A	100PF 50V CER.CAP.	
	C059	QCS21HJ-101A	100PF 50V CER.CAP.	
	C060	QCS21HJ-101A	100PF 50V CER.CAP.	
	C061	QETB1HM-226E	22MF 50V E.CAP.	
	C062	QETB1HM-226E	22MF 50V E.CAP.	
	C063	QETB1EM-476	47MF 25V AL E.CAP.	
	C064	QETB1EM-476	47MF 25V AL E.CAP.	
	C065	QCS21HJ-100	10PF 50V CER.CAP.	
	C066	QCS21HJ-100	10PF 50V CER.CAP.	
	C069	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C070	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C071	QETB1HM-105	1MF 50V AL E.CAP.	
	C075	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C076	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C077	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C078	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C079	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C080	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C081	QETB1EM-106	10MF 25V AL E.CAP.	
	C082	QETB1CM-476	47MF 16V AL E.CAP.	
	C092	QETB1CM-107	100MF 16V AL E.CAP.	
	C093	QETB1CM-476	47MF 16V AL E.CAP.	
	C201	QEZ0428-228	2200MF ELECTRO	
	C202	QEZ0428-228	2200MF ELECTRO	
	C205	QFV82AJ-104	0.1MF 100V THIN FILM CAP.	
	C208	QFV82AJ-104	0.1MF 100V THIN FILM CAP.	
	C211	QETM1EM-688	6800MF 25V AL E.CAP.	
	C212	QETB1VM-477E	470MF 35V AL E.CAP.	
	C215	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C218	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C231	QETB1CM-476	47MF 16V AL E.CAP.	
	C232	QETB1CM-476	47MF 16V AL E.CAP.	
	C233	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C234	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C241	QETB1CM-476	47MF 16V AL E.CAP.	
	C243	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C251	QETB1CM-476	47MF 16V AL E.CAP.	

■Electrical Parts List (Amp P.C.B.)

⚠	Item	Parts Number	Description	Area
	C253	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C255	QETB1CM-476	47MF 16V AL E.CAP.	
	C271	QETB1CM-476	47MF 16V AL E.CAP.	
	C273	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C275	QETB1CM-476	47MF 16V AL E.CAP.	
	C281	QETB1HM-227	220MF 50V E.CAP.	
	C282	QETB1HM-227	220MF 50V E.CAP.	
	C283	QETB1HM-226E	22MF 50V E.CAP.	
	C284	QETB1HM-226E	22MF 50V E.CAP.	
	C285	QETB1HM-475E	4.7MF 50V E.CAP.	
	C286	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C291	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C293	QETB1HM-105	1MF 50V AL E.CAP.	
	C541	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C542	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C543	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C544	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C545	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C546	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C547	QEKC1HM-225Z	2.2MF 50V ELECTRO	
	C548	QEKC1HM-225Z	2.2MF 50V ELECTRO	
	C551	QDGB1HK-821Y	820PF 50V C CAP.	
	C552	QETB1HM-474	0.47MF 50V E.CAP.	
	C553	QEKC1CM-476Z	47MF 16V ELECTRO	
	C555	QEKC1CM-476Z	47MF 16V ELECTRO	
	C556	QEKC1CM-476Z	47MF 16V ELECTRO	
	C557	QDXB1CM-472Y	4700PF 16V C.CAP.	
	C558	QDXB1CM-472Y	4700PF 16V C.CAP.	
	C561	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C562	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C565	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C566	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C567	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C568	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C569	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C570	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C571	QFVJ1HJ-224Z	0.22MF 50V T.FILM	
	C572	QFVJ1HJ-224Z	0.22MF 50V T.FILM	
	C573	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C574	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C575	QEKC1HM-475Z	4.7MF 50V ELECTRO	
	C576	QETB1AM-477	470MF 10V E.CAP.	
	C577	QETB1CM-337	330MF 16V AL E.CAP.	
	C581	QETB1CM-107	100MF 16V AL E.CAP.	
	C602	QCZ0202-155	1.5MF 25V CER.CAP.	
	C603	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C605	QETB1EM-106	10MF 25V AL E.CAP.	
	C606	QCGB1HK-102	1000PF 50V CER.CAP.	
	C607	QCGB1HK-102	1000PF 50V CER.CAP.	
	C608	QETB1HM-105	1MF 50V AL E.CAP.	
	C609	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C610	QFLB1HJ-273	0.027MF 50V MYLAR CAP.	
	C611	QDXB1CM-472Y	4700PF 16V C.CAP.	
	C612	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C613	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C614	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C615	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C616	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C617	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C618	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C619	QCBB1HK-271Y	270PF 50V CER.CAP.	
	C620	QCSB1HJ-470	47PF 50V CER.CAP.	
	C621	QCGB1HK-102	1000PF 50V CER.CAP.	
	C622	QCF31HZ-223Z	0.022MF 50V CERAMIC	
	C623	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C625	QCZ0202-155	1.5MF 25V CER.CAP.	
	C630	QETB1AM-477	470MF 10V E.CAP.	
	C631	QETB1AM-477	470MF 10V E.CAP.	
	C632	QETB1AM-477	470MF 10V E.CAP.	
	C641	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C642	QFLB1HJ-103	0.01MF 50V MYLAR CAP.	
	C651	QCSB1HJ-120Y	12PF 50V CER.CAP.	
	C652	QCSB1HJ-120Y	12PF 50V CER.CAP.	
	C653	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C654	QCSB1HK-5R6Y	5.6PF 50V CER.CAP.	
	C655	QFLB1HJ-104	0.1MF 50V MYLAR CAP.	
	C661	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C663	QFLB1HJ-223	0.022MF 50V MYLAR CAP.	
	C664	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C665	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C670	QCGB1HK-102	1000PF 50V CER.CAP.	
	C671	QFLB1HJ-222	2200PF 50V MYLAR CAP.	
	C672	QFLB1HJ-222	2200PF 50V MYLAR CAP.	
	C673	QEKC1AM-227Z	220MF 10V ELECTRO	
	C674	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C675	QCGB1HK-102	1000PF 50V CER.CAP.	
	C677	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C678	QCZ0202-155	1.5MF 25V CER.CAP.	
	C679	QEKC0JM-107Z	100MF 6.3V ELECTRO	
	C680	QCZ0202-155	1.5MF 25V CER.CAP.	
	C682	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C691	QETB1CM-226	22MF 16V E.CAP.	
	C693	QETC1AM-107ZN	100MF 10V E.CAP.	
	C887	QETB1HM-105	1MF 50V AL E.CAP.	
	C888	QETB1HM-105	1MF 50V AL E.CAP.	
	C889	QETB1HM-474	0.47MF 50V E.CAP.	
	C891	QETB1HM-224	0.22MF 50V AL E.CAP.	
	C899	QETB1CM-226	22MF 16V E.CAP.	
		RESISTORS		
⚠	R041	QRJ146J-561X	560 1/4W R.NETWORK	
⚠	R042	QRJ146J-561X	560 1/4W R.NETWORK	
	R043	QRJ146J-331X	330 1/4W R.NETWORK	
	R044	QRJ146J-331X	330 1/4W R.NETWORK	
	R051	QRE141J-102Y	1K 1/4W R.NETWORK	
	R052	QRE141J-102Y	1K 1/4W R.NETWORK	
	R053	QRE141J-473Y	47K 1/4W R.NETWORK	
	R054	QRE141J-473Y	47K 1/4W R.NETWORK	
	R055	QRT01DJ-R22X	0.22 1W R.NETWORK	
	R056	QRT01DJ-R22X	0.22 1W R.NETWORK	
	R057	QRT01DJ-R22X	0.22 1W R.NETWORK	
	R058	QRT01DJ-R22X	0.22 1W R.NETWORK	
⚠	R059	QRJ146J-100X	10 1/4W R.NETWORK	
⚠	R060	QRJ146J-100X	10 1/4W R.NETWORK	
⚠	R063	QRJ146J-681X	680 1/4W R.NETWORK	
⚠	R064	QRJ146J-681X	680 1/4W R.NETWORK	
	R065	QRE141J-473Y	47K 1/4W R.NETWORK	
	R066	QRE141J-473Y	47K 1/4W R.NETWORK	
⚠	R067	QRJ146J-2R2X	2.2 1/4W R.NETWORK	
⚠	R068	QRJ146J-2R2X	2.2 1/4W R.NETWORK	
⚠	R069	QRZ9005-100X	10 FUSIBLE	
⚠	R070	QRZ9005-100X	10 FUSIBLE	
	R073	QRE141J-122Y	1.2K 1/4W R.NETWORK	
	R074	QRE141J-122Y	1.2K 1/4W R.NETWORK	
	R075	QRE141J-223Y	22K 1/4W R.NETWORK	
	R076	QRE141J-223Y	22K 1/4W R.NETWORK	
	R077	QRE141J-103Y	10K 1/4W R.NETWORK	
	R078	QRE141J-103Y	10K 1/4W R.NETWORK	
	R079	QRE141J-104Y	100K 1/4W R.NETWORK	
	R080	QRE141J-823Y	82K 1/4W R.NETWORK	
	R081	QRE141J-103Y	10K 1/4W R.NETWORK	
	R082	QRE141J-103Y	10K 1/4W R.NETWORK	
	R083	QRE141J-104Y	100K 1/4W R.NETWORK	

■Electrical Parts List (Amp P.C.B.)

⚠	Item	Parts Number	Description	Area
	R084	QRE141J-104Y	100K 1/4W R.NETWORK	
	R085	QRJ146J-271X	270 1/4W R.NETWORK	
	R086	QRJ146J-271X	270 1/4W R.NETWORK	
	R087	QRE141J-152Y	1.5K 1/4W R.NETWORK	
	R088	QRE141J-104Y	100K 1/4W R.NETWORK	
	R091	QRE141J-103Y	10K 1/4W R.NETWORK	
	R092	QRE141J-563Y	56K 1/4W R.NETWORK	
	R093	QRE141J-102Y	1K 1/4W R.NETWORK	
	R094	QRE141J-473Y	47K 1/4W R.NETWORK	
	R095	QRE141J-104Y	100K 1/4W R.NETWORK	
	R097	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R098	QRE141J-222Y	2.2K 1/4W R.NETWORK	
⚠	R211	QRJ146J-1R0X	1 1/4W R.NETWORK	
⚠	R212	QRZ9005-100X	10 FUSIBLE	
⚠	R215	QRJ146J-1R0X	1 1/4W R.NETWORK	
	R229	QRE141J-182Y	1.8K 1/4W R.NETWORK	
	R230	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R231	QRE141J-681Y	680 1/4W R.NETWORK	
	R232	QRE141J-272Y	2.7K 1/4W R.NETWORK	
	R233	QRE141J-221Y	220 1/4W R.NETWORK	
	R241	QRE141J-681Y	680 1/4W R.NETWORK	
	R242	QRE141J-221Y	220 1/4W R.NETWORK	
	R243	QRE141J-182Y	1.8K 1/4W R.NETWORK	
	R244	QRE141J-101Y	100 1/4W R.NETWORK	
	R245	QRE141J-101Y	100 1/4W R.NETWORK	
	R251	QRE141J-122Y	1.2K 1/4W R.NETWORK	
	R252	QRE141J-122Y	1.2K 1/4W R.NETWORK	
	R253	QRE141J-331Y	330 1/4W R.NETWORK	
	R254	QRE141J-101Y	100 1/4W R.NETWORK	
	R255	QRE141J-101Y	100 1/4W R.NETWORK	
	R256	QRE141J-331Y	330 1/4W R.NETWORK	
	R257	QRE141J-331Y	330 1/4W R.NETWORK	
	R258	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R259	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R260	QRE141J-101Y	100 1/4W R.NETWORK	
	R270	QRZ9005-100X	10 FUSIBLE	
	R272	QRE141J-152Y	1.5K 1/4W R.NETWORK	
⚠	R281	QRJ146J-2R2X	2.2 1/4W R.NETWORK	
	R282	QRE141J-182Y	1.8K 1/4W R.NETWORK	
	R283	QRE141J-223Y	22K 1/4W R.NETWORK	
	R285	QRJ146J-1R0X	1 1/4W R.NETWORK	
	R291	QRE141J-103Y	10K 1/4W R.NETWORK	
	R292	QRE141J-103Y	10K 1/4W R.NETWORK	
	R293	QRE141J-103Y	10K 1/4W R.NETWORK	
	R294	QRE141J-102Y	1K 1/4W R.NETWORK	
	R295	QRE141J-104Y	100K 1/4W R.NETWORK	
	R541	QRE141J-393Y	39K 1/4W R.NETWORK	
	R542	QRE141J-393Y	39K 1/4W R.NETWORK	
	R543	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R544	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R551	QRE141J-563Y	56K 1/4W R.NETWORK	
	R552	QRE141J-184Y	180K 1/4W R.NETWORK	
	R553	QRE141J-105Y	1M 1/4W R.NETWORK	
	R555	QRE141J-221Y	220 1/4W R.NETWORK	
	R556	QRE141J-221Y	220 1/4W R.NETWORK	
	R557	QRE141J-102Y	1K 1/4W R.NETWORK	
	R558	QRE141J-102Y	1K 1/4W R.NETWORK	
	R561	QRE141J-183Y	18K 1/4W R.NETWORK	
	R562	QRE141J-183Y	18K 1/4W R.NETWORK	
	R563	QRE141J-153Y	15K 1/4W R.NETWORK	
	R564	QRE141J-153Y	15K 1/4W R.NETWORK	
	R565	QRE141J-153Y	15K 1/4W R.NETWORK	
	R566	QRE141J-153Y	15K 1/4W R.NETWORK	
	R567	QRE141J-681Y	680 1/4W R.NETWORK	
	R568	QRE141J-681Y	680 1/4W R.NETWORK	
	R569	QRE141J-183Y	18K 1/4W R.NETWORK	
	R570	QRE141J-103Y	10K 1/4W R.NETWORK	
	R571	QRE141J-183Y	18K 1/4W R.NETWORK	
	R572	QRZ9005-220X	22 FUSIBLE	
	R581	QRE141J-224Y	220K 1/4W R.NETWORK	
	R582	QRE141J-103Y	10K 1/4W R.NETWORK	
	R583	QRE141J-473Y	47K 1/4W R.NETWORK	
	R584	QRE141J-223Y	22K 1/4W R.NETWORK	
	R585	QRT022J-3R3	3.3 2W R.NETWORK	
	R586	QRE141J-751Y	750 1/4W R.NETWORK	
	R587	QRE141J-751Y	750 1/4W R.NETWORK	
	R588	QRE141J-471Y	470 1/4W R.NETWORK	
	R589	QRE141J-102Y	1K 1/4W R.NETWORK	
	R590	QRE141J-103Y	10K 1/4W R.NETWORK	
	R591	QRE141J-103Y	10K 1/4W R.NETWORK	
	R592	QRE141J-103Y	10K 1/4W R.NETWORK	
	R593	QRE141J-103Y	10K 1/4W R.NETWORK	
	R595	QRE141J-223Y	22K 1/4W R.NETWORK	
	R601	QRE141J-123Y	12K 1/4W R.NETWORK	
	R603	QRE141J-125Y	1.2M 1/4W R.NETWORK	
	R605	QRE141J-274Y	270K 1/4W R.NETWORK	
	R606	QRE141J-154Y	150K 1/4W R.NETWORK	
	R607	QRE141J-273Y	27K 1/4W R.NETWORK	
	R609	QRE141J-114Y	110K 1/4W R.NETWORK	
	R610	QRE141J-104Y	100K 1/4W R.NETWORK	
	R611	QRE141J-473Y	47K 1/4W R.NETWORK	
	R612	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R613	QRE141J-121Y	120 1/4W R.NETWORK	
	R614	QRE141J-100Y	10 1/4W R.NETWORK	
	R615	QRE141J-120Y	12 1/4W R.NETWORK	
	R616	QRE141J-910Y	91 1/4W R.NETWORK	
	R641	QRE141J-683Y	68K 1/4W R.NETWORK	
	R642	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R643	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R644	QRE141J-223Y	22K 1/4W R.NETWORK	
	R645	QRE141J-223Y	22K 1/4W R.NETWORK	
	R646	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R647	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R650	QRE141J-182Y	1.8K 1/4W R.NETWORK	
	R651	QRE141J-102Y	1K 1/4W R.NETWORK	
	R652	QRE141J-102Y	1K 1/4W R.NETWORK	
	R653	QRE141J-102Y	1K 1/4W R.NETWORK	
	R655	QRE141J-101Y	100 1/4W R.NETWORK	
	R660	QRE141J-102Y	1K 1/4W R.NETWORK	
	R661	QRE141J-683Y	68K 1/4W R.NETWORK	
	R663	QRE141J-124Y	120K 1/4W R.NETWORK	
	R664	QRE141J-471Y	470 1/4W R.NETWORK	
	R665	QRE141J-271Y	270 1/4W R.NETWORK	
	R666	QRE141J-220Y	22 1/4W R.NETWORK	
	R667	QRE141J-220Y	22 1/4W R.NETWORK	
	R671	QRE141J-102Y	1K 1/4W R.NETWORK	
	R672	QRE141J-102Y	1K 1/4W R.NETWORK	
	R691	QRE141J-151Y	150 1/4W R.NETWORK	
	R887	QRE141J-273Y	27K 1/4W R.NETWORK	
	R888	QRE141J-273Y	27K 1/4W R.NETWORK	
	R889	QRE141J-122Y	1.2K 1/4W R.NETWORK	
	R890	QRE141J-105Y	1M 1/4W R.NETWORK	
	R891	QRE141J-221Y	220 1/4W R.NETWORK	
	R892	QRE141J-221Y	220 1/4W R.NETWORK	
	R893	QRE141J-103Y	10K 1/4W R.NETWORK	
	R894	QRE141J-103Y	10K 1/4W R.NETWORK	
	R896	QRE141J-475Y	4.7M 1/4W R.NETWORK	
	R897	QRE141J-473Y	47K 1/4W R.NETWORK	
	R898	QRE141J-153Y	15K 1/4W R.NETWORK	
	R899	QRE141J-102Y	1K 1/4W R.NETWORK	
	VR561	QVP0008-503Z	50K VARIABLE	
	VR562	QVP0008-503Z	50K VARIABLE	

■Electrical Parts List (Amp P.C.B.)

⚠	Item	Parts Number	Description	Area
	VR581	QVP0008-103Z	10K VARIABLE	
		OTHERS		
	J051	QNB0082-001	SPEAKER TERMINAL	
	K212	QQR0779-001Z	INDUCTOR	
	K671	QQR0779-001Z	INDUCTOR	
	K691	QQR0779-001Z	INDUCTOR	
	L051	QQLZ005-R45	INDUCTOR	
	L052	QQLZ005-R45	INDUCTOR	
	X651	QAX0007-001Z	RESONATOR I.M	
	CN011	QGA2501C1-03	3P CONNECTOR	
	CN051	QGB2510K2-12	CONNECTOR	
	CN052	QGB2510J1-06	CONNECTOR	
	CN061	QGB2510J1-12	CONNECTOR	
	CN201	QGB2510J1-11	CONNECTOR	
	CN211	QGB2510K2-11	CONECTOR	
	CN512	QGB1214J1-12S	CONNECT TERMINAL	
	CN513	QGB1214J1-12S	CONNECT TERMINAL	
	CN514	QGF1205F1-25	CONNECTOR	
	CN601	QGF1016F1-15	15FFC CONNECTOR	
	CN602	QGA2001C1-06	6P PLUG ASSY	
	CN604	QGF1205F1-17	CONNECTOR	
	CN701	QGB2510J1-15	CONNECTOR	
	CP251	ICP-N38	I.C. PROTECTOR	
	CP281	ICP-N10-T	I.C. PROTECTOR	
	EP201	QNZ0136-001Z	IM EARTH PLATE	
	JT002	QGD2501C1-03Z	SOCKET I.M	
	JT003	QGD2501C1-03Z	SOCKET I.M	
	JT902	QGD2501C1-05Z	SOCKET I.M	
	JT903	QGD2501C1-05Z	SOCKET I.M	
	RY071	QSK0057-001	RELAY	
	TP601	QMV5004-002K	PLUG ASSY	
	TW601	EWF102-047	TERMINAL WIRE	

■Electrical Parts List (Input P.C.B.)

⚠	Item	Parts Number	Description	Area
		I.C.S		
⚠	IC104	LA1266A	I.C(MONO-ANALOG)	
⚠	IC105	LA3401	I.C(MONO-ANALOG)	
⚠	IC121	LC72131	I.C(M)	
	IC261	LC7073	I.C(DIGI-MOS)	
	IC262	BU1923	I.C(M)	
	IC701	TDA7439	I.C(M)	
	IC703	NJM4580DD	I.C(MONO-ANALOG)	
	IC704	XR1099CP	I.C(MONO-ANALOG)	
	IC741	BU4066BC	I.C(DIGI-MOS)	
	IC751	MN173222JABJ	I.C(MICRO-COMPUTER)	
		DIODES		
	D104	1SS254-T2	SILICON	
	D105	1SS254-T2	SILICON	
	D106	1SS254-T2	SILICON	
	D116	1SS254-T2	SILICON	
	D120	1SS133-T2	SI.DIODE	
	D702	11E2-T5	SILICON	
	D703	1SS133-T2	SI.DIODE	
	D704	1SS133-T2	SI.DIODE	
	D705	MTZJ5.1B-T2	ZENER	
	D706	MTZJ5.1B-T2	ZENER	
	D731	MTZJ11A-T2	ZENER	
	D741	MTZJ5.1B-T2	ZENER	
	D801	1SS133-T2	SI.DIODE	
	D821	SLR-9118A-T	L.E.D.	
		TRANSISTORS		
	Q103	2SC461/BC/-T	SILICON	
	Q107	2SC535/BC/-T	SILICON	
	Q108	2SC461/BC/-T	SILICON	
	Q111	2SD2144S/VW/-T	SILICON	
	Q112	2SD2144S/VW/-T	SILICON	
	Q113	2SD2144S/VW/-T	SILICON	
	Q114	2SD2144S/VW/-T	SILICON	
	Q123	DTA144ES	DIGITAL TRANSISTOR	
	Q124	DTA144ES	DIGITAL TRANSISTOR	
	Q151	2SK301/QR/-T	F.E.T	
	Q712	DTA144ES	DIGITAL TRANSISTOR	
	Q713	2SD2144S/VW/-T	SILICON	
	Q714	2SD2144S/VW/-T	SILICON	
	Q715	DTA144ES	DIGITAL TRANSISTOR	
	Q717	2SD2144S/VW/-T	SILICON	
	Q718	2SD2144S/VW/-T	SILICON	
	Q741	DTC144ES	DIGITAL TRANSISTOR	
	Q751	2SB1565/EF/	SILICON	
	Q752	DTC114YS	DIGITAL TRANSISTOR	
	Q821	SPS-1118C-T	PHOTO TR. K	
		CAPACITORS		
	C101	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C102	QCSB1HK-5R6Y	5.6PF 50V CER.CAP.	
	C103	QCSB1HJ-150Y	15PF 50V CER.CAP.	
	C104	QCF31HZ-103Z	0.01MF 50V CERAMIC	
	C105	QCF31HZ-103Z	0.01MF 50V CERAMIC	
	C111	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C112	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C113	QCZ0205-155	1.5MF 25V C.CAP.	
	C115	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C116	QCSB1HJ-120Y	12PF 50V CER.CAP.	
	C122	QCF31HZ-223Z	0.022MF 50V CERAMIC	
	C130	QETC1CM-227Z	220MF 16V AL E.CAP.	
	C135	QETB1CM-477M	470MF 16V E.CAP.	
	C136	QETB1AM-227	220MF 10V E.CAP.	
	C150	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C151	QCF31HZ-223Z	0.022MF 50V CERAMIC	
	C152	QCF31HZ-223Z	0.022MF 50V CERAMIC	
	C153	QDX31EM-223Z	0.022MF 25V C CAP.	
	C154	QCF31HZ-223Z	0.022MF 50V CERAMIC	
	C155	QETB1EM-226N	22MF 25V E.CAP.	
	C157	QETB1HM-474	0.47MF 50V E.CAP.	
	C158	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C159	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C160	QCS21HJ-221	220PF 50V CER.CAP.	
	C161	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C162	QETB1EM-106	10MF 25V AL E.CAP.	
	C163	QCB31HK-332Z	3300PF 50V CERAMIC	
	C164	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C165	QETB1HM-474	0.47MF 50V E.CAP.	
	C166	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C167	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C168	QETB1HM-474	0.47MF 50V E.CAP.	
	C169	QCF31HZ-223Z	0.022MF 50V CERAMIC	
	C170	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C171	QETB1EM-106	10MF 25V AL E.CAP.	
	C172	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C173	QFLB1HJ-223	0.022MF 50V MYLAR CAP.	
	C174	QFLB1HJ-473	0.047MF 50V MYLAR CAP.	
	C175	QETB1EM-106	10MF 25V AL E.CAP.	
	C176	QCB31HK-102Z	1000PF 50V CERAMIC	
	C177	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C178	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C179	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C180	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C181	QETB1EM-106	10MF 25V AL E.CAP.	
	C183	QETB1HM-105	1MF 50V AL E.CAP.	
	C184	QETB1HM-105	1MF 50V AL E.CAP.	
	C185	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C186	QETB1HM-474	0.47MF 50V E.CAP.	
	C187	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C188	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C192	QDX31EM-473Z	0.047MF 25V C CAP.	
	C193	QDC31HJ-180Z	18PF 50V C.CAPA. I.M	
	C194	QDC31HJ-180Z	18PF 50V C.CAPA. I.M	
	C195	QCB31HK-102Z	1000PF 50V CERAMIC	
	C196	QENB1HM-474	0.47MF 50V NP E.CAP.	
	C261	QETB1HM-226E	22MF 50V E.CAP.	
	C262	QCZ0205-155	1.5MF 25V C.CAP.	
	C263	QCBB1HK-820Y	82PF 50V CER.CAP.	
	C264	QCSB1HJ-470	47PF 50V CER.CAP.	
	C265	QETB1HM-226E	22MF 50V E.CAP.	
	C266	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C267	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C268	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C269	QCZ0202-155	1.5MF 25V CER.CAP.	
	C700	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C701	QETB1HM-105	1MF 50V AL E.CAP.	
	C702	QETB1HM-105	1MF 50V AL E.CAP.	
	C703	QETB1EM-106	10MF 25V AL E.CAP.	
	C704	QETB1EM-106	10MF 25V AL E.CAP.	
	C705	QETB1EM-106	10MF 25V AL E.CAP.	
	C706	QETB1EM-106	10MF 25V AL E.CAP.	
	C707	QETB1EM-106	10MF 25V AL E.CAP.	
	C708	QETB1EM-106	10MF 25V AL E.CAP.	
	C709	QETB1EM-106	10MF 25V AL E.CAP.	
	C710	QETB1EM-106	10MF 25V AL E.CAP.	
	C711	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C712	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C713	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C714	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C715	QFVJ1HJ-183Z	0.018MF 50V T.FILM	
	C716	QFVJ1HJ-183Z	0.018MF 50V T.FILM	
	C717	QFVJ1HJ-223Z	0.022MF 50V T.FILM	
	C718	QFVJ1HJ-223Z	0.022MF 50V T.FILM	

■Electrical Parts List (Input P.C.B.)

⚠	Item	Parts Number	Description	Area
	C719	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C720	QFLB1HJ-562	5600PF 50V MYLAR CAP.	
	C721	QETB1HM-105	1MF 50V AL E.CAP.	
	C722	QETB1HM-105	1MF 50V AL E.CAP.	
	C723	QFVJ1HJ-223Z	0.022MF 50V T.FILM	
	C724	QFVJ1HJ-223Z	0.022MF 50V T.FILM	
	C725	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C726	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C727	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C728	QFLB1HJ-472	4700PF 50V MYLAR CAP.	
	C731	QETB1CM-107	100MF 16V AL E.CAP.	
	C732	QETB1EM-106	10MF 25V AL E.CAP.	
	C733	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C734	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C735	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C736	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C737	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C740	QETB1EM-106	10MF 25V AL E.CAP.	
	C741	QETC1AM-107ZN	100MF 10V E.CAP.	
	C751	QETB1HM-106	10MF 50V E.CAP.	
	C752	QETB1HM-106	10MF 50V E.CAP.	
	C755	QETB0JM-477	470MF 6.3V AL E.CAP.	
	C756	QETB0JM-107	100MF 6.3V AL E.CAP.	
	C761	QETC1AM-107ZN	100MF 10V E.CAP.	
	C764	QETB1CM-476	47MF 16V AL E.CAP.	
	C765	QCGB1HK-102	1000PF 50V CER.CAP.	
	C766	QETC1AM-107ZN	100MF 10V E.CAP.	
	C791	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C792	QETB1CM-476	47MF 16V AL E.CAP.	
	C793	QCZ0202-155	1.5MF 25V CER.CAP.	
	C799	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C801	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C831	QETB1HM-475E	4.7MF 50V E.CAP.	
		RESISTORS		
	R101	QRE141J-221Y	220 1/4W R.NETWORK	
⚠	R102	QRJ146J-470X	47 1/4W R.NETWORK	
	R111	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R112	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R113	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R114	QRE141J-103Y	10K 1/4W R.NETWORK	
	R115	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R116	QRE141J-104Y	100K 1/4W R.NETWORK	
	R117	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R118	QRE141J-332Y	3.3K 1/4W R.NETWORK	
	R119	QRE141J-221Y	220 1/4W R.NETWORK	
	R121	QRE141J-391Y	390 1/4W R.NETWORK	
	R122	QRE141J-272Y	2.7K 1/4W R.NETWORK	
	R123	QRE141J-102Y	1K 1/4W R.NETWORK	
	R124	QRE141J-681Y	680 1/4W R.NETWORK	
	R125	QRE141J-332Y	3.3K 1/4W R.NETWORK	
	R126	QRE141J-221Y	220 1/4W R.NETWORK	
	R130	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R146	QRE141J-560Y	56 1/4W R.NETWORK	
	R147	QRE141J-103Y	10K 1/4W R.NETWORK	
	R148	QRE141J-103Y	10K 1/4W R.NETWORK	
	R149	QRE141J-273Y	27K 1/4W R.NETWORK	
	R150	QRE141J-103Y	10K 1/4W R.NETWORK	
	R151	QRE141J-332Y	3.3K 1/4W R.NETWORK	
	R153	QRE141J-103Y	10K 1/4W R.NETWORK	
	R154	QRE141J-103Y	10K 1/4W R.NETWORK	
	R155	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R157	QRE141J-103Y	10K 1/4W R.NETWORK	
	R158	QRE141J-273Y	27K 1/4W R.NETWORK	
	R159	QRE141J-561Y	560 1/4W R.NETWORK	
	R160	QRE141J-333Y	33K 1/4W R.NETWORK	
	R161	QRE141J-204Y	200K 1/4W R.NETWORK	
	R162	QRE141J-204Y	200K 1/4W R.NETWORK	
	R163	QRE141J-122Y	1.2K 1/4W R.NETWORK	
	R164	QRE141J-122Y	1.2K 1/4W R.NETWORK	
	R165	QRE141J-274Y	270K 1/4W R.NETWORK	
	R166	QRE141J-274Y	270K 1/4W R.NETWORK	
	R167	QRE141J-473Y	47K 1/4W R.NETWORK	
	R168	QRE141J-103Y	10K 1/4W R.NETWORK	
	R169	QRE141J-103Y	10K 1/4W R.NETWORK	
	R170	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R171	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R172	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R175	QRZ9006-4R7X	4.7 FUSIBLE	
	R183	QRE141J-103Y	10K 1/4W R.NETWORK	
	R184	QRE141J-103Y	10K 1/4W R.NETWORK	
	R188	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R194	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R195	QRE141J-473Y	47K 1/4W R.NETWORK	
	R196	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R197	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R198	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R261	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R701	QRE141J-303Y	30K 1/4W R.NETWORK	
	R702	QRE141J-303Y	30K 1/4W R.NETWORK	
	R703	QRE141J-223Y	22K 1/4W R.NETWORK	
	R704	QRE141J-223Y	22K 1/4W R.NETWORK	
	R711	QRE141J-224Y	220K 1/4W R.NETWORK	
	R712	QRE141J-224Y	220K 1/4W R.NETWORK	
	R715	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R716	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R717	QRE141J-272Y	2.7K 1/4W R.NETWORK	
	R718	QRE141J-272Y	2.7K 1/4W R.NETWORK	
	R725	QRE141J-113Y	11K 1/4W R.NETWORK	
	R726	QRE141J-113Y	11K 1/4W R.NETWORK	
	R727	QRE141J-271Y	270 1/4W R.NETWORK	
	R728	QRE141J-271Y	270 1/4W R.NETWORK	
	R729	QRE141J-104Y	100K 1/4W R.NETWORK	
	R730	QRE141J-104Y	100K 1/4W R.NETWORK	
	R731	QRE141J-221Y	220 1/4W R.NETWORK	
	R733	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R734	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R735	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R736	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R741	QRE141J-471Y	470 1/4W R.NETWORK	
	R742	QRE141J-103Y	10K 1/4W R.NETWORK	
	R745	QRE141J-221Y	220 1/4W R.NETWORK	
	R746	QRE141J-221Y	220 1/4W R.NETWORK	
	R749	QRE141J-221Y	220 1/4W R.NETWORK	
	R750	QRE141J-221Y	220 1/4W R.NETWORK	
	R751	QRE141J-471Y	470 1/4W R.NETWORK	
	R752	QRE141J-103Y	10K 1/4W R.NETWORK	
	R755	QRE141J-102Y	1K 1/4W R.NETWORK	
	R756	QRE141J-103Y	10K 1/4W R.NETWORK	
	R757	QRE141J-242Y	2.4K 1/4W R.NETWORK	
	R758	QRE141J-242Y	2.4K 1/4W R.NETWORK	
	R759	QRE141J-152Y	1.5K 1/4W R.NETWORK	
	R760	QRE141J-152Y	1.5K 1/4W R.NETWORK	
	R761	QRE141J-471Y	470 1/4W R.NETWORK	
	R762	QRE141J-152Y	1.5K 1/4W R.NETWORK	
	R763	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R764	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R765	QRE141J-471Y	470 1/4W R.NETWORK	
	R766	QRE141J-223Y	22K 1/4W R.NETWORK	
	R767	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R768	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R770	QRE141J-223Y	22K 1/4W R.NETWORK	
	R771	QRE141J-223Y	22K 1/4W R.NETWORK	

■Electrical Parts List (Input P.C.B.)

⚠	Item	Parts Number	Description	Area
	R772	QRE141J-223Y	22K 1/4W R.NETWORK	
	R773	QRE141J-223Y	22K 1/4W R.NETWORK	
	R775	QRE141J-102Y	1K 1/4W R.NETWORK	
	R776	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R777	QRE141J-223Y	22K 1/4W R.NETWORK	
	R779	QRE141J-223Y	22K 1/4W R.NETWORK	
	R781	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R782	QRE141J-103Y	10K 1/4W R.NETWORK	
	R783	QRE141J-471Y	470 1/4W R.NETWORK	
	R784	QRE141J-221Y	220 1/4W R.NETWORK	
	R785	QRE141J-221Y	220 1/4W R.NETWORK	
	R786	QRE141J-221Y	220 1/4W R.NETWORK	
	R787	QRE141J-221Y	220 1/4W R.NETWORK	
	R788	QRE141J-221Y	220 1/4W R.NETWORK	
	R789	QRE141J-103Y	10K 1/4W R.NETWORK	
	R790	QRE141J-103Y	10K 1/4W R.NETWORK	
	R791	QRE141J-103Y	10K 1/4W R.NETWORK	
	R792	QRE141J-105Y	1M 1/4W R.NETWORK	
	R793	QRE141J-102Y	1K 1/4W R.NETWORK	
	R794	QRE141J-103Y	10K 1/4W R.NETWORK	
	R795	QRE141J-473Y	47K 1/4W R.NETWORK	
	R796	QRE141J-103Y	10K 1/4W R.NETWORK	
	R797	QRE141J-103Y	10K 1/4W R.NETWORK	
	R798	QRE141J-103Y	10K 1/4W R.NETWORK	
	R801	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R802	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R803	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R804	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R805	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R806	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R807	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R808	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R809	QRE141J-103Y	10K 1/4W R.NETWORK	
	R810	QRE141J-471Y	470 1/4W R.NETWORK	
	R811	QRE141J-103Y	10K 1/4W R.NETWORK	
	R812	QRE141J-331Y	330 1/4W R.NETWORK	
	R813	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R814	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R815	QRE141J-103Y	10K 1/4W R.NETWORK	
	R816	QRE141J-103Y	10K 1/4W R.NETWORK	
	R817	QRE141J-473Y	47K 1/4W R.NETWORK	
	R818	QRE141J-473Y	47K 1/4W R.NETWORK	
	R819	QRE141J-473Y	47K 1/4W R.NETWORK	
	R821	QRE141J-821Y	820 1/4W R.NETWORK	
	R834	QRE141J-222Y	2.2K 1/4W R.NETWORK	
		OTHERS		
		VND4003-013	FUSE LABEL	
		VND4003-037	FUSE LABEL	
	J701	QNN0068-001	JACK ASSY	
	K206	QQR0779-001Z	INDUCTOR	
	L101	QQL231K-1R0Y	INDUCTOR I.M	
	L102	QQL231K-150Y	INDUCTOR I.M	
	S101	QSW0509-001	SLIDE SWITCH	
	T105	QQR0578-001	I.F.TRANSFORMER	
	T107	QAX0278-001	CERAMIC FILTER	
	T111	QQR0591-001	RF COIL	
	X102	QAX0251-001Z	RESONATOR I	
	X103	QAX0243-001	RESONATOR	
	X261	QAX0248-001Z	CERA LOCK	
	X262	QAX0263-001Z	CRYSTAL	
	X751	QAX0247-001Z	RESONATOR I.M	
	AT101	QNB0014-001	ANT TERMINAL	
	BK101	LV30413-001A	SHIELD BRACKET	
	CF101	QAX0281-001	C.FILTER	
	CF102	QAX0281-001	C.FILTER	
	CN001	EWS243-086	SOCKET WIRE ASSY	

⚠	Item	Parts Number	Description	Area
	CN104	QGB2003M2-14	CONNECT TERMINAL	
	CN114	QGB2003L1-14	CONNECT TERMINAL	
	CN504	QGF1205C1-25	CONNECTOR	
	CN614	QGF1205C1-17	CONNECTOR	
	CN711	QGB2510K2-15	CONNECTOR	
	CN713	QGD2503F1-03	SOCKET	
	CN714	QGF1024C1-21S	CONNECTOR	
	CN811	QGF1205F1-10	CONNECTOR	
	CN911	QGF1205C1-23	CONNECTOR	
	CP751	ICP-N15-T	I.C. PROTECTOR	
	EP801	QNZ0136-001Z	IM EARTH PLATE	
	FL102	QQR0566-001	FILTER	
	FL141	QQR0590-001	LOWPASS FILTER	
	FL142	QQR0590-001	LOWPASS FILTER	
	FT001	QNG0020-001Z	FUSE CLIP I.M	
	FT002	QNG0020-001Z	FUSE CLIP I.M	
	FT100	QNG0020-001Z	FUSE CLIP I.M	
	FT101	QNG0020-001Z	FUSE CLIP I.M	
	FT102	QNG0020-001Z	FUSE CLIP I.M	
	FT103	QNG0020-001Z	FUSE CLIP I.M	
	FW002	EWR36D-16LS	FLAT WIRE	
	FW712	VWSC02-203K3K	FLAT WIRE	
	FW713	EWR33D-13LS	FLAT WIRE	
	RF101	QAU0005-001	FRONT END	
	TB001	QNZ0079-001Z	TAB I.M	
	TB002	QNZ0079-001Z	TAB I.M	
	TW701	EWT015-030	TERMINAL WIRE ASSY	

■Electrical Parts List (Front P.C.B.)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC501	BA3126N	I.C(MONO-ANALOG)	
	IC502	NJM4558D-D	I.C(MONO-ANALOG)	
	IC901	MN173222JABL	I.C(MICRO-COMPUTER)	
	IC902	NJU3715G-W	I.C(M)	
	IC903	M35501FP	I.C(M)	
	IC904	GP1U271X	INFRARED DETECT UNIT	
	IC906	NJU3715G-W	I.C(M)	
		DIODES		
	D503	1SS133-T2	SI.DIODE	
	D521	1SS133-T2	SI.DIODE	
	D901	1SS133-T2	SI.DIODE	
	D902	11ES2-T4	SILICON	
	D903	1SS133-T2	SI.DIODE	
	D904	1SS133-T2	SI.DIODE	
	D905	1SS133-T2	SI.DIODE	
	D906	1SS133-T2	SI.DIODE	
	D907	1SS133-T2	SI.DIODE	
	D908	1SS133-T2	SI.DIODE	
	D909	1SS133-T2	SI.DIODE	
	D910	1SS133-T2	SI.DIODE	
	D911	1SS133-T2	SI.DIODE	
	D912	1SS133-T2	SI.DIODE	
	D913	1SS133-T2	SI.DIODE	
	D914	1SS133-T2	SI.DIODE	
	D915	1SS133-T2	SI.DIODE	
	D916	1SS133-T2	SI.DIODE	
	D917	SLA-380LT-T	L.E.D.	
	D918	SLR-342VC-T	L.E.D.	
	D919	SLR-342VC-T	L.E.D.	
	D920	SLR-342VC-T	L.E.D.	
	D921	SLR-342VC-T	L.E.D.	
	D922	SLR-342VC-T	L.E.D.	
	D923	SLR-342VC-T	L.E.D.	
	D924	SLR-342VC-T	L.E.D.	
	D925	SLR-342VC-T	L.E.D.	
	D926	SLR-342VC-T	L.E.D.	
	D927	SLR-342VC-T	L.E.D.	
	D928	SLR-342VC-T	L.E.D.	
	D929	SLR-342MC-T	L.E.D.	
	D930	SLR-342MC-T	L.E.D.	
	D931	SLR-342MC-T	L.E.D.	
	D932	SLR-342MC-T	L.E.D.	
	D933	SLR-342MC-T	L.E.D.	
	D934	SLR-342MC-T	L.E.D.	
	D935	SLR-342MC-T	L.E.D.	
	D936	SLR-342MC-T	L.E.D.	
	D937	SPR-39MVWF	L.E.D.	
	D939	SPR-39MVWF	L.E.D.	
	D941	SPR-39MVWF	L.E.D.	
	D943	LNG91LCF9	L.E.D.	
	D944	LNG91LCF9	L.E.D.	
	D945	LN289CUQ-45-T	L.E.D.	
	D946	LN289CUQ-45-T	L.E.D.	
	D951	1SS133-T2	SI.DIODE	
		TRANSISTORS		
	Q521	2SC1740S/RS/-T	SILICON	
	Q522	2SC1740S/RS/-T	SILICON	
	Q523	2SC1740S/RS/-T	SILICON	
	Q524	2SC1740S/RS/-T	SILICON	
	Q530	2SC1740S/RS/-T	SILICON	
	Q531	DTA144ES	DIGITAL TRANSISTOR	
	Q901	DTC143TS	DIGITAL TRANSISTOR	
	Q902	DTC143TS	DIGITAL TRANSISTOR	
	Q903	DTC143TS	DIGITAL TRANSISTOR	
	Q943	DTC143TS	DIGITAL TRANSISTOR	
	Q945	DTC143TS	DIGITAL TRANSISTOR	
		CAPACITORS		
	C500	QETB1CM-476	47MF 16V AL E.CAP.	
	C501	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C502	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C503	QCGB1HK-102	1000PF 50V CER.CAP.	
	C504	QCGB1HK-102	1000PF 50V CER.CAP.	
	C505	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C506	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C507	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C508	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C509	QETC1AM-107ZN	100MF 10V E.CAP.	
	C510	QETC1AM-107ZN	100MF 10V E.CAP.	
	C511	QFLB1HJ-822	8200PF 50V MYLAR CAP.	
	C512	QFLB1HJ-822	8200PF 50V MYLAR CAP.	
	C513	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C514	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C515	QETB1CM-476	47MF 16V AL E.CAP.	
	C516	QETB1CM-476	47MF 16V AL E.CAP.	
	C521	QETB1HM-105	1MF 50V AL E.CAP.	
	C522	QFLB1HJ-682	6800PF 50V MYLAR CAP.	
	C523	QFLB1HJ-332	3300PF 50V MYLAR CAP.	
	C524	QFLB1HJ-332	3300PF 50V MYLAR CAP.	
	C525	QFLB1HJ-183	0.018MF 50V MYLAR CAP.	
	C526	QETB1HM-105	1MF 50V AL E.CAP.	
	C527	QETB1EM-106	10MF 25V AL E.CAP.	
	C528	QETB1CM-107	100MF 16V AL E.CAP.	
	C530	QFP31HJ-472Z	4700PF 50V POLYPROPY.FILM	
	C531	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C532	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C533	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C534	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C535	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C536	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C901	QEZ0329-479Z	47000MF ELECTRO	
	C902	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C903	QER50JM-107	100MF 6.3V AL E.CAP.	
	C904	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C905	QCZ0202-155	1.5MF 25V CER.CAP.	
	C906	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C907	QER50JM-107	100MF 6.3V AL E.CAP.	
	C910	QER51HM-106	10MF 50V AL E.CAP.	
	C911	QER61HM-105Z	1MF 50V AL E.CAP.	
	C912	QER61HM-105Z	1MF 50V AL E.CAP.	
	C913	QER50JM-107	100MF 6.3V AL E.CAP.	
	C915	QER50JM-107	100MF 6.3V AL E.CAP.	
	C916	QER50JM-107	100MF 6.3V AL E.CAP.	
	C917	QDC31HJ-220Z	22PF 50V C.CAPA. I.M	
	C918	QDC31HJ-220Z	22PF 50V C.CAPA. I.M	
	C919	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C920	QCBB1HK-221Y	220PF 50V CER.CAP.	
	C932	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C933	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C935	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C936	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C938	QCZ0202-155	1.5MF 25V CER.CAP.	
	C944	QDYB1CM-103Y	0.01MF 16V C CAP.	
		RESISTORS		
	R500	QRE141J-221Y	220 1/4W R.NETWORK	
	R501	QRE141J-100Y	10 1/4W R.NETWORK	
	R502	QRE141J-100Y	10 1/4W R.NETWORK	
	R503	QRE141J-104Y	100K 1/4W R.NETWORK	
	R504	QRE141J-104Y	100K 1/4W R.NETWORK	
	R505	QRE141J-221Y	220 1/4W R.NETWORK	
	R506	QRE141J-221Y	220 1/4W R.NETWORK	
	R507	QRE141J-224Y	220K 1/4W R.NETWORK	

■Electrical Parts List (Front P.C.B.)

⚠	Item	Parts Number	Description	Area
	R508	QRE141J-224Y	220K 1/4W R.NETWORK	
	R509	QRE141J-163Y	16K 1/4W R.NETWORK	
	R510	QRE141J-163Y	16K 1/4W R.NETWORK	
	R511	QRE141J-221Y	220 1/4W R.NETWORK	
	R512	QRE141J-221Y	220 1/4W R.NETWORK	
	R521	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R522	QRE141J-332Y	3.3K 1/4W R.NETWORK	
	R523	QRE141J-104Y	100K 1/4W R.NETWORK	
	R524	QRE141J-181Y	180 1/4W R.NETWORK	
	R525	QRE141J-511Y	510 1/4W R.NETWORK	
	R526	QRE141J-561Y	560 1/4W R.NETWORK	
	R527	QRE141J-393Y	39K 1/4W R.NETWORK	
	R528	QRE141J-393Y	39K 1/4W R.NETWORK	
	R529	QRJ146J-6R8X	6.8 1/4W R.NETWORK	
	R530	QRZ9005-100X	10 FUSIBLE	
	R531	QRE141J-561Y	560 1/4W R.NETWORK	
	R535	QRE141J-223Y	22K 1/4W R.NETWORK	
	R536	QRE141J-223Y	22K 1/4W R.NETWORK	
	R901	QRE141J-470Y	47 1/4W R.NETWORK	
	R902	QRE141J-102Y	1K 1/4W R.NETWORK	
	R903	QRE141J-103Y	10K 1/4W R.NETWORK	
	R904	QRE141J-102Y	1K 1/4W R.NETWORK	
	R905	QRE141J-103Y	10K 1/4W R.NETWORK	
	R906	QRE141J-103Y	10K 1/4W R.NETWORK	
	R907	QRE141J-103Y	10K 1/4W R.NETWORK	
	R908	QRE141J-103Y	10K 1/4W R.NETWORK	
	R909	QRE141J-104Y	100K 1/4W R.NETWORK	
	R910	QRE141J-104Y	100K 1/4W R.NETWORK	
	R911	QRE141J-104Y	100K 1/4W R.NETWORK	
	R912	QRE141J-103Y	10K 1/4W R.NETWORK	
	R913	QRE141J-103Y	10K 1/4W R.NETWORK	
	R914	QRE141J-103Y	10K 1/4W R.NETWORK	
	R915	QRE141J-103Y	10K 1/4W R.NETWORK	
	R917	QRE141J-471Y	470 1/4W R.NETWORK	
	R918	QRE141J-181Y	180 1/4W R.NETWORK	
	R919	QRE141J-181Y	180 1/4W R.NETWORK	
	R920	QRE141J-181Y	180 1/4W R.NETWORK	
	R921	QRE141J-221Y	220 1/4W R.NETWORK	
	R922	QRE141J-221Y	220 1/4W R.NETWORK	
	R923	QRE141J-221Y	220 1/4W R.NETWORK	
	R924	QRE141J-271Y	270 1/4W R.NETWORK	
	R925	QRE141J-221Y	220 1/4W R.NETWORK	
	R926	QRE141J-221Y	220 1/4W R.NETWORK	
	R927	QRE141J-221Y	220 1/4W R.NETWORK	
	R928	QRE141J-221Y	220 1/4W R.NETWORK	
	R929	QRE141J-181Y	180 1/4W R.NETWORK	
	R930	QRE141J-181Y	180 1/4W R.NETWORK	
	R931	QRE141J-680Y	68 1/4W R.NETWORK	
	R932	QRE141J-221Y	220 1/4W R.NETWORK	
	R933	QRE141J-221Y	220 1/4W R.NETWORK	
	R934	QRE141J-221Y	220 1/4W R.NETWORK	
	R935	QRE141J-221Y	220 1/4W R.NETWORK	
	R936	QRE141J-221Y	220 1/4W R.NETWORK	
	R937	QRE141J-221Y	220 1/4W R.NETWORK	
	R938	QRE141J-331Y	330 1/4W R.NETWORK	
	R939	QRE141J-221Y	220 1/4W R.NETWORK	
	R940	QRE141J-331Y	330 1/4W R.NETWORK	
	R941	QRE141J-221Y	220 1/4W R.NETWORK	
	R942	QRE141J-331Y	330 1/4W R.NETWORK	
	R943	QRE141J-330Y	33 1/4W R.NETWORK	
	R944	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R945	QRE141J-391Y	390 1/4W R.NETWORK	
	R947	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R950	QRE141J-103Y	10K 1/4W R.NETWORK	
	R951	QRE141J-221Y	220 1/4W R.NETWORK	
	R952	QRE141J-221Y	220 1/4W R.NETWORK	
	R953	QRE141J-221Y	220 1/4W R.NETWORK	
	R954	QRE141J-221Y	220 1/4W R.NETWORK	
	R955	QRE141J-221Y	220 1/4W R.NETWORK	
	R956	QRE141J-221Y	220 1/4W R.NETWORK	
	R957	QRE141J-221Y	220 1/4W R.NETWORK	
	R958	QRE141J-221Y	220 1/4W R.NETWORK	
	R959	QRE141J-221Y	220 1/4W R.NETWORK	
	R960	QRE141J-103Y	10K 1/4W R.NETWORK	
	R999	QRE141J-101Y	100 1/4W R.NETWORK	
	RA901	QRB095J-104	100K 1/8W NETWORK RES.	
	RA902	QRB095J-104	100K 1/8W NETWORK RES.	
	RA903	QRB045J-104	100K 1/8W RES. ARR	
	RA904	QRB135J-104	100K 1/8W NETWORK RES.	
	VR501	QVP0008-104Z	100K VARIABLE	
	VR502	QVP0008-104Z	100K VARIABLE	
	VR503	QVP0008-501Z	500 VARIABLE	
	VR504	QVP0008-501Z	500 VARIABLE	
	VR531	QVP0008-104Z	100K VARIABLE	
	VR532	QVP0008-104Z	100K VARIABLE	
		OTHERS		
		E3400-431	FELT SPACER	
		E407620-002	SPACER	
	J901	QNS0025-001	MICROPHONE JACK	
	L521	QQR0588-001	OSC COIL	
	L535	QQL30BJ-223Z	INDUCTOR I.M	
	L536	QQL30BJ-223Z	INDUCTOR I.M	
	S901	QSW0499-001Z	PUSH SW I.M	
	S902	QSW0499-001Z	PUSH SW I.M	
	S903	QSW0499-001Z	PUSH SW I.M	
	S904	QSW0499-001Z	PUSH SW I.M	
	S905	QSW0499-001Z	PUSH SW I.M	
	S906	QSW0499-001Z	PUSH SW I.M	
	S907	QSW0499-001Z	PUSH SW I.M	
	S908	QSW0499-001Z	PUSH SW I.M	
	S909	QSW0499-001Z	PUSH SW I.M	
	S910	QSW0499-001Z	PUSH SW I.M	
	S911	QSW0499-001Z	PUSH SW I.M	
	S912	QSW0499-001Z	PUSH SW I.M	
	S913	QSW0499-001Z	PUSH SW I.M	
	S914	QSW0499-001Z	PUSH SW I.M	
	S915	QSW0499-001Z	PUSH SW I.M	
	S916	QSW0499-001Z	PUSH SW I.M	
	S917	QSW0499-001Z	PUSH SW I.M	
	S918	QSW0499-001Z	PUSH SW I.M	
	S919	QSW0499-001Z	PUSH SW I.M	
	S920	QSW0499-001Z	PUSH SW I.M	
	S921	QSW0499-001Z	PUSH SW I.M	
	S922	QSW0499-001Z	PUSH SW I.M	
	S923	QSW0499-001Z	PUSH SW I.M	
	S924	QSW0499-001Z	PUSH SW I.M	
	S925	QSW0499-001Z	PUSH SW I.M	
	S926	QSW0499-001Z	PUSH SW I.M	
	S927	QSW0499-001Z	PUSH SW I.M	
	S928	QSW0499-001Z	PUSH SW I.M	
	S929	QSW0499-001Z	PUSH SW I.M	
	S930	QSW0499-001Z	PUSH SW I.M	
	S931	QSW0499-001Z	PUSH SW I.M	
	S932	QSW0499-001Z	PUSH SW I.M	
	S933	QSW0499-001Z	PUSH SW I.M	
	S934	QSW0499-001Z	PUSH SW I.M	
	S935	QSW0499-001Z	PUSH SW I.M	
	S936	QSW0499-001Z	PUSH SW I.M	
	S937	QSW0499-001Z	PUSH SW I.M	
	S938	QSW0499-001Z	PUSH SW I.M	
	S939	QSW0499-001Z	PUSH SW I.M	
	S940	QSW0499-001Z	PUSH SW I.M	

■Electrical Parts List (Front P.C.B.)

⚠	Item	Parts Number	Description	Area
	S941	QSW0499-001Z	PUSH SW I.M	
	S942	QSW0499-001Z	PUSH SW I.M	
	S943	QSW0499-001Z	PUSH SW I.M	
	S944	QSW0499-001Z	PUSH SW I.M	
	S945	QSW0499-001Z	PUSH SW I.M	
	S946	QSW0499-001Z	PUSH SW I.M	
	S947	QSW0499-001Z	PUSH SW I.M	
	S948	QSW0499-001Z	PUSH SW I.M	
	X901	QAX0268-001	RESONATOR	
	CN062	QGB2510K2-06	CONNECTOR	
	CN501	QGF1216F2-06	FFC SOCKET	
	CN502	QGB1214K1-12S	CONNECT TERMINAL	
	CN901	QGF1210G1-23	FFC CONNECTOR	
	DI901	QLF0027-001	FLUORESCENT DISPLAY TUBE	
	FW902	EWR3AD-32LS	FLAT WIRE	
	FW903	EWR38D-16SS	FLAT WIRE	
	FW904	VWSC03-143K3K	FLAT WIRE	
	JS901	QSW0501-001	JOG SW	
	JS902	QSW0557-001	ROTARY SWITCH	
	TW902	EWT015-029	TERMINAL WIRE ASSY	

■ Electrical Parts List (Changer Control P.C.B.)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC801	UPD65612GB-208	I.C(M)	
	IC802	TA8409S	I.C(MONO-ANALOG)	
	IC803	TA8409S	I.C(MONO-ANALOG)	
		CAPACITORS		
	C801	QEK61AM-107ZM	AL E.CAP.	
	C802	QEK61EM-475ZM	AL E.CAP.	
	C803	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C804	QCFB1HZ-104Y	0.1MF 50V CER.CAP.	
	C805	QCVB1CN-103Y	0.01MF 16V CER.CAP.	
	C806	QEK61CM-476	AL E.CAP.	
	C807	QEK61CM-476	AL E.CAP.	
	C808	QFLB1HJ-102	1000PF 50V MYLAR CAP.	
	C810	QCZ0205-155	1.5MF 25V C.CAP.	
	C811	QCZ0205-155	1.5MF 25V C.CAP.	
	C813	QCVB1CN-103Y	0.01MF 16V CER.CAP.	
	C821	QCGB1HK-102	1000PF 50V CER.CAP.	
		RESISTORS		
	R805	QRD161J-102	1K 1/6W CARBON RES.	
	R806	QRD161J-471	470 1/6W CARBON RES.	
	R807	QRD161J-471	470 1/6W CARBON RES.	
	R808	QRD161J-102	1K 1/6W CARBON RES.	
	R810	QRD161J-684	680K 1/6W CARBON RES.	
	R811	QRD161J-105	1M 1/6W CARBON RES.	
	R813	QRD161J-102	1K 1/6W CARBON RES.	
	R814	QRD161J-102	1K 1/6W CARBON RES.	
	R815	QRD161J-102	1K 1/6W CARBON RES.	
	R816	QRD161J-102	1K 1/6W CARBON RES.	
	R817	QRD161J-102	1K 1/6W CARBON RES.	
	R818	QRD161J-102	1K 1/6W CARBON RES.	

⚠	Item	Parts Number	Description	Area
	R819	QRD161J-102	1K 1/6W CARBON RES.	
	R820	QRD161J-102	1K 1/6W CARBON RES.	
	R821	QRD161J-102	1K 1/6W CARBON RES.	
	R822	QRD161J-102	1K 1/6W CARBON RES.	
	R823	QRD161J-102	1K 1/6W CARBON RES.	
	R824	QRD161J-102	1K 1/6W CARBON RES.	
	R825	QRD161J-102	1K 1/6W CARBON RES.	
	R826	QRD161J-102	1K 1/6W CARBON RES.	
	R827	QRD161J-102	1K 1/6W CARBON RES.	
	R828	QRD161J-102	1K 1/6W CARBON RES.	
	R829	QRD161J-102	1K 1/6W CARBON RES.	
	R830	QRD161J-102	1K 1/6W CARBON RES.	
	R832	QRD161J-181	180 1/6W CARBON RES.	
	R833	QRD161J-102	1K 1/6W CARBON RES.	
	R834	QRD161J-102	1K 1/6W CARBON RES.	
	R839	QRD167J-332	3.3K 1/6W CARBON RES.	
	R840	QRD167J-562	5.6K 1/6W CARBON RES.	
		OTHERS		
		VMW1377-004A	PW BOARD	
		SBSF2608Z	TAPPING SCREW	
		VYH7237-001SS	IC HOLDER	
	L801	VQP0018-100	INDUCTOR	
	L802	VQP0033-100Z	INDUCTOR	
	L803	VQP0033-100Z	INDUCTOR	
	L804	VQP0033-100Z	INDUCTOR	
	CN801	VMC0163-R10	CONNECT TERMINAL	
	CN802	VMC0289-P07	CONNECT TERMINAL	
	CN803	VMC0324-12310	CONNECT TERMINAL	

■ Electrical Parts List (CD Select Switch P.C.B.)

⚠	Item	Parts Number	Description	Area
		OTHERS		
	CN804	QGB2016J1-07	CONNECTOR	
	SW1	QSW0507-001	SWITCH	
	SW2	QSW0507-001	SWITCH	
	SW3	QSW0507-001	SWITCH	
	SW4	QSW0507-001	SWITCH	
	SW5	QSW0507-001	SWITCH	
	SW6	QSW0507-001	SWITCH	

■Electrical Parts List (MD Servo P.C.B.)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC310	CXA2523AR	IC(M)	
	IC340	TC7S08F-W	IC(M)	
	IC350	CXD2652AR	IC(M)	
	IC390	M5M4V4400CTP-7	IC(M)	
	IC410	M56758FP-X	IC(M)	
	IC440	LB1638M-TEL	IC(M)	
	IC450	BD7910FV-X	IC(M)	
	IC480	AK4520A-VF-X	IC(M)	
	IC485	TK71340M-W	IC(M)	
	IC500	HD6433048SV35F	MPU	
	IC590	AK93C45AF-W	IC(M)	
		DIODES		
	D310	1SS355-X	SI DIODE	
	D451	SC802-06-X	DIODE	
	D452	SC802-06-X	DIODE	
		TRANSISTORS		
	Q330	2SA1362GR	TR.	
	Q331	DTA114EKA-X	TR.	
	Q332	DTA113ZKA-X	TR.	
	Q333	DTA113ZKA-X	TR.	
	Q400	2SA1363T1(E, F)	TR.	
	Q401	2SC2411K(Q, R)TL	TR.	
	Q402	DTA113ZKA-X	TR.	
	Q421	DTC114EKA-X	TR.	
	Q422	DTC114EKA-X	TR.	
		CAPACITORS		
	C300	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C302	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C307	NCB31HK-222AY	2200PF 50V CER.CAP.	
	C310	NCB31HK-102AY	1000PF 50V CER.CAP.	
	C311	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C312	NEA20GM-476NZ	47MF 4V E.CAP.	
	C314	NCB31CK-223A	0.022MF 16V CER.CAP.	
	C315	NCB31HK-102AY	1000PF 50V CER.CAP.	
	C316	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C318	NCB31HK-682AY	6800PF 50V CER.CAP.	
	C319	NCB31CK-333AY	0.033MF 16V CER.CAP.	
	C320	NCB21CK-104X	0.1MF 16V CER.CAP.	
	C321	NCB31HK-472AY	4700PF 50V CER.CAP.	
	C322	NCB20JK-105AY	1MF 10V CER.CAP.	
	C323	NCB31HK-682AY	6800PF 50V CER.CAP.	
	C324	NCB21CK-224AYU	0.22MF 16V CER.CAP.	
	C325	NCB31CK-103AYM	0.01MF 16V CER.CAP.	
	C326	NCB31CK-223A	0.022MF 16V CER.CAP.	
	C327	NCB31CK-104AY	0.1MF 16V CER.CAP.	
	C328	NCB31CK-104AY	0.1MF 16V CER.CAP.	
	C330	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C333	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C334	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C340	NCB31CK-223A	0.022MF 16V CER.CAP.	
	C341	NCB31CK-223A	0.022MF 16V CER.CAP.	
	C342	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C350	NEA20GM-476NZ	47MF 4V E.CAP.	
	C351	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C352	NEA20GM-476NZ	47MF 4V E.CAP.	
	C353	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C354	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C355	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C356	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C357	NCS21HJ-100AY	10PF 50V CER.CAP.	
	C358	NCS21HJ-100AY	10PF 50V CER.CAP.	
	C359	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C361	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C371	NCS31HJ-100AY	10PF 50V CER.CAP.	
	C372	NCS31HJ-100AY	10PF 50V CER.CAP.	
	C375	NCB31CK-103AYM	0.01MF 16V CER.CAP.	
	C376	NCB21CK-474AY	0.47MF 16V CER.CAP.	
	C377	NCS31HJ-471AY	470PF 50V CER.CAP.	
	C379	NCB21CK-474AY	0.47MF 16V CER.CAP.	
	C380	NCB31CK-153AYU	0.015MF 16V CER.CAP.	
	C381	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C382	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C390	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C400	NEA20JM-226NZ	22MF 6.3V E.CAP.	
	C401	NEA20JM-107NZM	100MF 6.3V E.CAP.	
	C402	NCB31HK-331AY	330PF 50V CER.CAP.	
	C403	NEA20GM-476NZ	47MF 4V E.CAP.	
	C404	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C405	NCB31HK-151AY	150PF 50V CER.CAP.	
	C406	NCB31HK-221AY	220PF 50V CER.CAP.	
	C410	NEA20JM-107NZM	100MF 6.3V E.CAP.	
	C411	NCF31AZ-105AYUU	1MF 10V CER.CAP.	
	C412	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C421	NCB31HK-561AY	560PF 50V CER.CAP.	
	C423	NCB31HK-561AY	560PF 50V CER.CAP.	
	C425	NCB31HK-561AY	560PF 50V CER.CAP.	
	C427	NCB31HK-561AY	560PF 50V CER.CAP.	
	C429	NCB31HK-102AY	1000PF 50V CER.CAP.	
	C431	NCB31HK-102AY	1000PF 50V CER.CAP.	
	C433	NCB31HK-562AY	5600PF 50V CER.CAP.	
	C435	NCB31HK-562AY	5600PF 50V CER.CAP.	
	C437	NCB31CK-103AYM	0.01MF 16V CER.CAP.	
	C439	NCB31CK-103AYM	0.01MF 16V CER.CAP.	
	C441	NCF31AZ-105AYUU	1MF 10V CER.CAP.	
	C442	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C450	NEA20JM-107NZM	100MF 6.3V E.CAP.	
	C451	NEA20GM-107NZM	100MF 4V E.CAP.	
	C452	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C453	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C455	NDC32AJ-101X	100PF 100V CER.CAP.	
	C480	NEA20JM-476NZ	47MF 6.3V E.CAP.	
	C481	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C482	NEA20JM-226NZ	22MF 6.3V E.CAP.	
	C483	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C484	NEA21CM-106NZ	10MF 16V E.CAP.	
	C485	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C486	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C487	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C488	NEA21CM-106NZ	10MF 16V E.CAP.	
	C490	NCB31CK-103AYM	0.01MF 16V CER.CAP.	
	C491	NCB31HK-222AY	2200PF 50V CER.CAP.	
	C492	NCB31HK-222AY	2200PF 50V CER.CAP.	
	C493	NCF21CZ-105AY	1MF 16V CER.CAP.	
	C497	NCB31HK-221AY	220PF 50V CER.CAP.	
	C498	NCB31HK-561AY	560PF 50V CER.CAP.	
	C501	NCS21HJ-220AY	22PF 50V CER.CAP.	
	C502	NCS21HJ-220AY	22PF 50V CER.CAP.	
	C511	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C512	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C515	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
	C521	NCB31HK-101AY	100PF 50V CER.CAP.	
	C522	NCB31HK-331AY	330PF 50V CER.CAP.	
	C523	NCB31HK-331AY	330PF 50V CER.CAP.	
	C591	NCF31CZ-104AY	0.1MF 16V CER.CAP.	
		RESISTORS		
	R300	NRSA63J-0R0NYR	RESISTOR	
	R301	NRSA63J-0R0NYR	RESISTOR	
	R302	NRSA63J-0R0NYR	RESISTOR	
	R303	NRSA63J-122NY	RESISTOR	
	R305	NRSA63J-222NY	RESISTOR	
	R306	NRSA63J-474NY	RESISTOR	

■Electrical Parts List (MD Servo P.C.B.)

⚠	Item	Parts Number	Description	Area
	R309	NRSA63J-474NY	RESISTOR	
	R310	NRSA63J-331NY	RESISTOR	
	R311	NRSA63J-183NY	RESISTOR	
	R312	NRSA63J-103NY	RESISTOR	
	R313	NRSA63J-104NY	RESISTOR	
	R314	NRSA63J-133NY	RESISTOR	
	R315	NRSA63J-243NY	RESISTOR	
	R316	NRSA63J-104NY	RESISTOR	
	R317	NRSA63J-103NY	RESISTOR	
	R320	NRSA63J-563NY	RESISTOR	
	R321	NRSA63J-331NY	RESISTOR	
	R322	NRSA63J-331NY	RESISTOR	
	R323	NRSA63J-331NY	RESISTOR	
	R324	NRSA63J-102NY	RESISTOR	
	R325	NRSA63J-472NY	RESISTOR	
	R326	NRSA63J-331NY	RESISTOR	
	R327	NRSA63J-331NY	RESISTOR	
	R328	NRSA63J-101NYR	RESISTOR	
	R330	NRSA63J-0R0NYR	RESISTOR	
	R331	NRSA63J-220NY	RESISTOR	
	R336	NRSA63J-104NY	RESISTOR	
	R337	NRSA63J-1R0NY	RESISTOR	
	R338	NRSA63J-4R7NY	RESISTOR	
	R340	NRSA63J-222NY	RESISTOR	
	R341	NRSA63J-222NY	RESISTOR	
	R342	NRSA63J-222NY	RESISTOR	
	R351	NRSA63J-100NY	RESISTOR	
	R352	NRSA63J-100NY	RESISTOR	
	R353	NRSA63J-105NYR	RESISTOR	
	R354	NRVA63D-103NY	RESISTOR	
	R355	NRVA63D-103NY	RESISTOR	
	R361	NRSA63J-102NY	RESISTOR	
	R362	NRSA63J-102NY	RESISTOR	
	R363	NRSA63J-102NY	RESISTOR	
	R364	NRSA63J-102NY	RESISTOR	
	R365	NRSA63J-102NY	RESISTOR	
	R366	NRSA63J-102NY	RESISTOR	
	R367	NRSA63J-102NY	RESISTOR	
	R368	NRSA63J-102NY	RESISTOR	
	R369	NRSA63J-102NY	RESISTOR	
	R370	NRSA63J-104NY	RESISTOR	
	R371	NRSA63J-103NY	RESISTOR	
	R372	NRSA63J-103NY	RESISTOR	
	R375	NRSA63J-103NY	RESISTOR	
	R376	NRSA63J-104NY	RESISTOR	
	R377	NRSA63J-684NY	RESISTOR	
	R378	NRSA63J-332NY	RESISTOR	
	R379	NRSA63J-102NY	RESISTOR	
	R380	NRSA63J-105NYR	RESISTOR	
	R381	NRSA63J-102NY	RESISTOR	
	R382	NRSA63J-151NY	RESISTOR	
	R389	NRSA63J-331NY	RESISTOR	
	R391	NRSA63J-331NY	RESISTOR	
	R392	NRSA63J-102NY	RESISTOR	
	R393	NRSA63J-102NY	RESISTOR	
	R394	NRSA63J-102NY	RESISTOR	
	R395	NRSA63J-102NY	RESISTOR	
	R396	NRSA63J-331NY	RESISTOR	
	R397	NRSA63J-331NY	RESISTOR	
	R401	NRVA63D-123X	RESISTOR	
	R402	NRVA63D-512X	RESISTOR	
	R403	NRSA63J-0R0NYR	RESISTOR	
	R404	NRSA63J-104NY	RESISTOR	
	R420	NRVA63D-223NY	RESISTOR	
	R421	NRVA63D-103NY	RESISTOR	
	R422	NRVA63D-223NY	RESISTOR	
	R423	NRVA63D-103NY	RESISTOR	
	R424	NRVA63D-223NY	RESISTOR	
	R425	NRVA63D-103NY	RESISTOR	
	R426	NRVA63D-223NY	RESISTOR	
	R427	NRVA63D-103NY	RESISTOR	
	R428	NRVA63D-223NY	RESISTOR	
	R429	NRVA63D-103NY	RESISTOR	
	R430	NRVA63D-223NY	RESISTOR	
	R431	NRVA63D-103NY	RESISTOR	
	R432	NRSA63J-123NY	RESISTOR	
	R433	NRVA63D-822X	RESISTOR	
	R434	NRSA02J-123NY	RESISTOR	
	R435	NRVA63D-822X	RESISTOR	
	R436	NRSA63J-123NY	RESISTOR	
	R437	NRSA63J-272NY	RESISTOR	
	R438	NRSA63J-123NY	RESISTOR	
	R439	NRSA63J-272NY	RESISTOR	
	R440	NRVA63D-103NY	RESISTOR	
	R441	NRVA63D-103NY	RESISTOR	
	R442	NRSA63J-102NY	RESISTOR	
	R451	NRSA63J-103NY	RESISTOR	
	R452	NRSA63J-682NY	RESISTOR	
	R453	NRSA63J-1R0NY	RESISTOR	
	R454	NRSA63J-1R0NY	RESISTOR	
	R455	NRSA63J-223NY	RESISTOR	
	R460	NRSA63J-102NY	RESISTOR	
	R461	NRSA63J-102NY	RESISTOR	
	R462	NRSA63J-102NY	RESISTOR	
	R463	NRSA63J-102NY	RESISTOR	
	R464	NRSA63J-102NY	RESISTOR	
	R465	NRSA63J-102NY	RESISTOR	
	R481	NRSA63J-100NY	RESISTOR	
	R483	NRSA63J-0R0NYR	RESISTOR	
	R485	NRSA63J-103NY	RESISTOR	
	R491	NRSA63J-471NY	RESISTOR	
	R492	NRSA63J-471NY	RESISTOR	
	R495	NRSA63J-471NY	RESISTOR	
	R496	NRSA63J-471NY	RESISTOR	
	R501	NRSA63J-105NYR	RESISTOR	
	R502	NRSA63J-561NY	RESISTOR	
	R503	NRSA63J-103NY	RESISTOR	
	R504	NRSA63J-333NY	RESISTOR	
	R505	NRSA63J-4R7NY	RESISTOR	
	R510	NRSA63J-102NY	RESISTOR	
	R511	NRSA63J-102NY	RESISTOR	
	R512	NRSA63J-102NY	RESISTOR	
	R513	NRSA63J-102NY	RESISTOR	
	R514	NRSA63J-102NY	RESISTOR	
	R515	NRSA63J-102NY	RESISTOR	
	R516	NRSA63J-102NY	RESISTOR	
	R517	NRSA02J-104NY	RESISTOR	
	R518	NRSA63J-102NY	RESISTOR	
	R519	NRSA63J-102NY	RESISTOR	
	R520	NRSA63J-102NY	RESISTOR	
	R521	NRSA63J-102NY	RESISTOR	
	R522	NRSA63J-222NY	RESISTOR	
	R523	NRSA63J-102NY	RESISTOR	
	R524	NRSA63J-102NY	RESISTOR	
	R525	NRSA63J-102NY	RESISTOR	
	R526	NRSA63J-103NY	RESISTOR	
	R527	NRSA63J-103NY	RESISTOR	
	R528	NRSA63J-102NY	RESISTOR	
	R529	NRSA63J-102NY	RESISTOR	
	R531	NRSA63J-472NY	RESISTOR	
	R532	NRSA63J-472NY	RESISTOR	
	R533	NRSA63J-472NY	RESISTOR	

■Electrical Parts List (MD Servo P.C.B.)

⚠	Item	Parts Number	Description	Area
	R534	NRSA63J-472NY	RESISTOR	
	R535	NRSA02J-473NY	RESISTOR	
	R536	NRSA63J-472NY	RESISTOR	
	R537	NRSA02J-473NY	RESISTOR	
	R538	NRSA63J-472NY	RESISTOR	
	R539	NRSA63J-472NY	RESISTOR	
	R540	NRSA63J-472NY	RESISTOR	
	R541	NRSA63J-472NY	RESISTOR	
	R542	NRSA02J-473NY	RESISTOR	
	R543	NRSA63J-472NY	RESISTOR	
	R549	NRSA63J-0R0NYR	RESISTOR	
	R551	NRSA63J-104NY	RESISTOR	
	R552	NRSA63J-104NY	RESISTOR	
	R553	NRSA63J-104NY	RESISTOR	
	R554	NRSA63J-104NY	RESISTOR	
	R555	NRSA63J-102NY	RESISTOR	
	R556	NRSA63J-102NY	RESISTOR	
	R557	NRSA63J-102NY	RESISTOR	
	R558	NRSA63J-102NY	RESISTOR	
	R559	NRSA63J-333NY	RESISTOR	
	R560	NRSA63J-333NY	RESISTOR	
	R561	NRSA63J-333NY	RESISTOR	
	R562	NRSA63J-333NY	RESISTOR	
	R563	NRSA63J-333NY	RESISTOR	
	R565	NRSA63J-102NY	RESISTOR	
	R566	NRSA63J-102NY	RESISTOR	
	R567	NRSA63J-102NY	RESISTOR	
	R568	NRSA63J-102NY	RESISTOR	
	R591	NRSA63J-220NY	RESISTOR	
	R592	NRSA63J-104NY	RESISTOR	
		OTHERS		
	K450	NQR0129-004X	BANDPASS FILTER	
	K491	NQR0129-004X	BANDPASS FILTER	
	K492	NQR0129-004X	BANDPASS FILTER	
	K495	NQR0129-004X	BANDPASS FILTER	
	K496	NQR0129-004X	BANDPASS FILTER	
	K521	VQZ0108-006Y	INDUCTOR	
	K522	VQZ0108-006Y	INDUCTOR	
	K523	NQR0129-002X	BANDPASS FILTER	
	K524	NRSA02J-0R0NY	RESISTOR	
	K527	NQR0129-004X	BANDPASS FILTER	
	K528	NQR0129-004X	BANDPASS FILTER	
	K529	NQR0129-004X	BANDPASS FILTER	
	K530	NQR0129-004X	BANDPASS FILTER	
	K531	NQR0129-004X	BANDPASS FILTER	
	K532	NQR0129-004X	BANDPASS FILTER	
	K533	NQR0129-004X	BANDPASS FILTER	
	K534	NQR0129-004X	BANDPASS FILTER	
	L525	VQP0032-1R0Y	INDUCTOR	
	L526	VQP0032-1R0Y	INDUCTOR	
	S401	NSW0058-002X	REST SW	
	S402	NSW0057-001X	2-SW	
	S403	NSW0061-002X	DETECT SW	
	S404	NSW0061-002X	DETECT SW	
	S411	NSW0061-002X	DETECT SW	
	S412	NSW0061-002X	DETECT SW	
	S413	NSW0061-002X	DETECT SW	
	X350	NAX0160-001X	CRYSTAL	
	X500	NAX0159-001X	CRYSTAL	
	CN321	EMV7150-221E	CONNECTOR	
	CN402	EMV5152-002RE	CONNECTOR	
	CN403	EMV5152-003RE	CONNECTOR	
	CN408	EMV7154-208E	SOCKET	
	CN410	EMV5175-010E	CONNECTOR	
	CN418	EMV7173-008E	CONNECTOR	
	CN453	EMV5152-003RE	CONNECTOR	

⚠	Item	Parts Number	Description	Area
	CN458	EMV7154-108E	CONNECTOR	
	CN460	EMV7175-010RE	CONNECTOR	
	CN465	EMV7171-005E	CONNECTOR	
	CN466	EMV5176-006RE	CONNECTOR	
	CN475	EMV7171-005E	CONNECTOR	
	CN521	EMV7154-221E	SOCKET	

■Electrical Parts List (MD Switch P.C.B.)

⚠	Item	Parts Number	Description	Area
		OTHERS		
	S421	QSW0601-001	DETECT SW	
	S422	QSW0601-001	DETECT SW	
	S423	QSW0601-001	DETECT SW	
	S424	QSW0601-001	DETECT SW	
	S425	QSW0601-001	DETECT SW	
	CN468	EMV5132-008R	CONNECTOR	
	CN476	EMV7176-006	CONNECTOR	

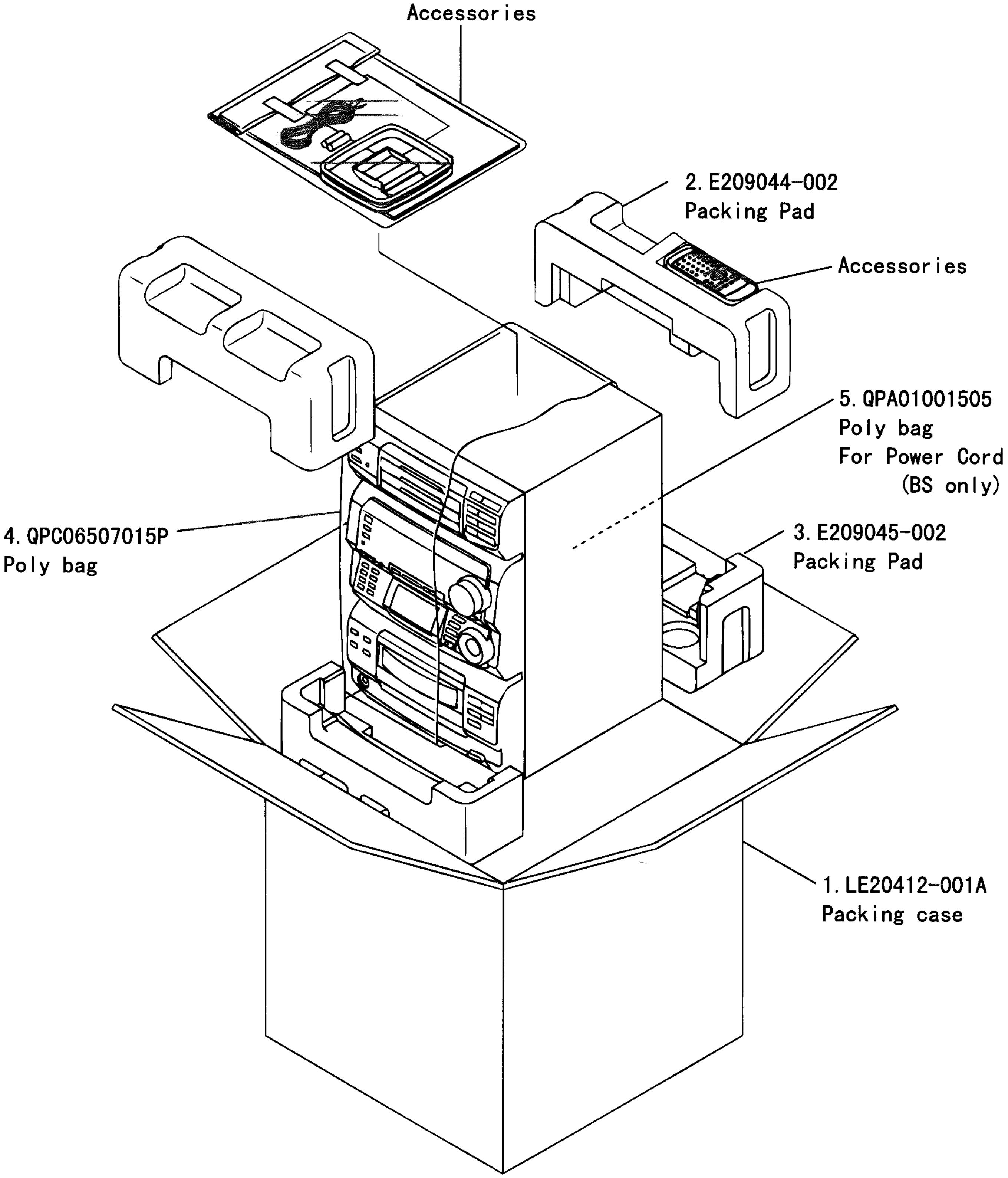
■Accessories List

Block No. M6MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	LET0070-001A	INSTRUCTION BOOK	1		EF EN G
		LET0070-002A	INSTRUCTION BOOK	1		BS
	2	BT-54008-1	WARRANTY CARD	1		
	3	E43486-340A	SAFETY SHEET	1		BS
	4	QAL0014-001	AM LOOP ANT	1		
	5	EWP503-001	ANTENNA WIRE	1		
	6	RM-SEMD9RU	WIRE-LESS REMOTE CONTROL	1		
	7	R6PPTT/2STS	BATTERY	1		
	8	QPC02503510P	POLY BAG	1		

Packing

Block No. M 7 M M


Accessories
2. E209044-002
Packing Pad
Accessories
5. QPA01001505
Poly bag
For Power Cord
(BS only)
4. QPC06507015P
Poly bag
3. E209045-002
Packing Pad
1. LE20412-001A
Packing case

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